THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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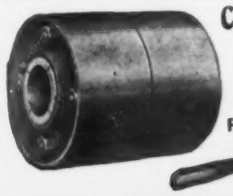

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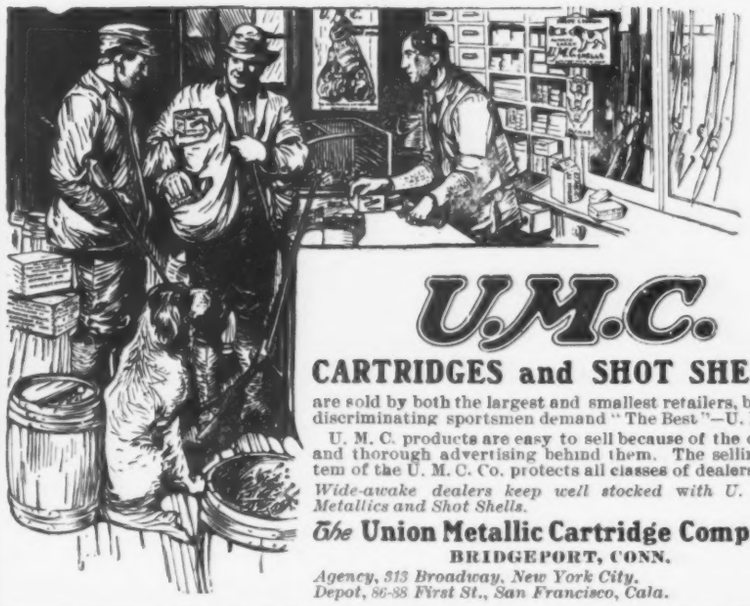

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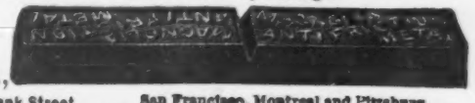

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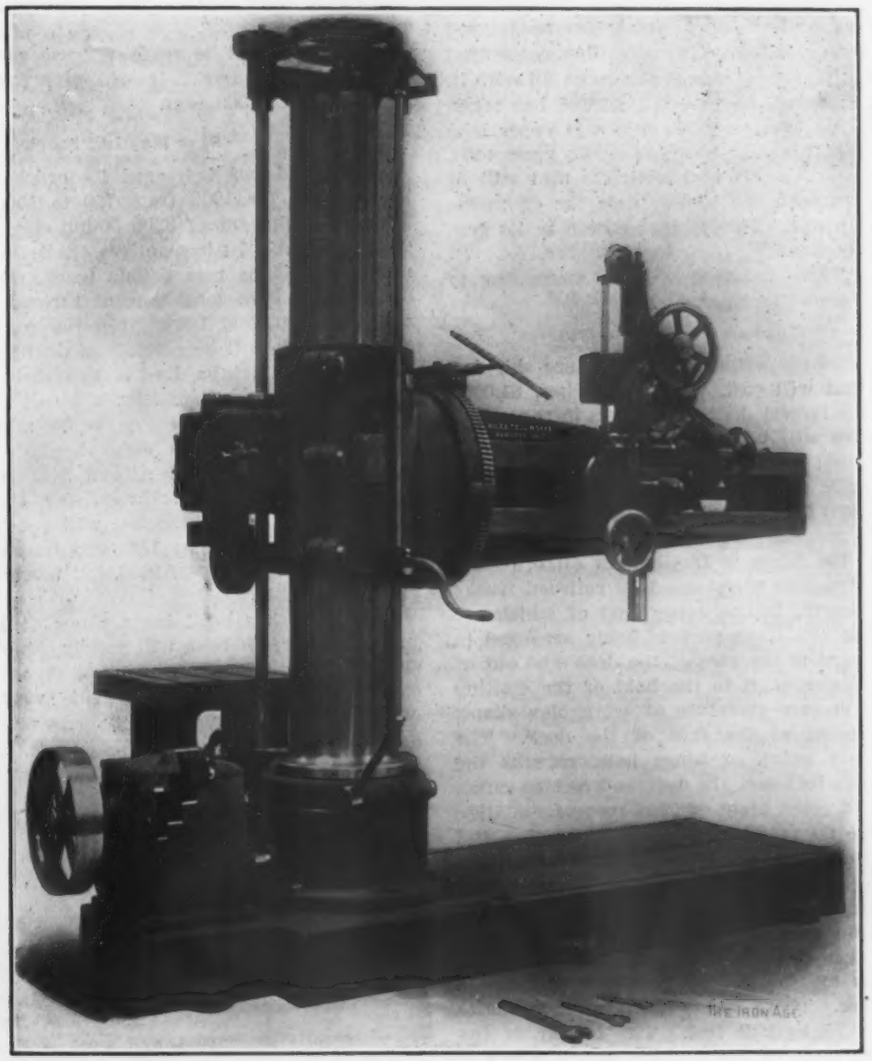
THE IRON AGE

New York, Thursday, November 23, 1905.

The Niles New Radial Drill.

A new radial drill for general work of comparatively simple design, yet embodying all the features now considered desirable in a tool of its class, is illustrated herewith. The machine is built in 4, 5 and 6 foot sizes, either plain or universal pattern, by the Niles Tool Works, Hamilton, Ohio, of the Niles-Bement-Pond Company. The tool is provided with a gear cone and tumbler gears in a speed box and a single constant speed driving pulley which takes the place of a four-step cone. The drive is through positive gears throughout. An additional space may be provided on the base plate for a motor, so that the machine may be readily changed from belt to motor drive at any time.



A New 6-Foot Standard Radial Drill Built by the Niles Tool Works, Hamilton, Ohio

The drill head is of full swing type, being mounted on a swiveling base, and can be readily turned from a vertical to a horizontal position. It has lateral adjustment along the arm through a rack and pinion operated by a conveniently located hand wheel. The drill spindle is a hammered steel forging of large diameter, made ample in size at the point where the drive is applied. The spindle is counterbalanced and has a quick raising device. A conveniently arranged reverse lever in front of the drill head is used for tapping. The position of this lever up or down indicates the direction of the spindle motion, and in its central position it automatically disengages the feed and the drill spindle is stopped. The feed is locked out until the lever is again thrown into the down position. Three changes of positive feed through gearing can be obtained for any drill speed, the changes being made through a pull pinion on the head.

The arm is of very rigid construction and may be raised and lowered by power. It is carried on a sleeve surrounding and having a large bearing on the outer column. The inner column or post is bolted to the base and supports the outer column, which rests on roller bearings, permitting easy swinging of the drill arm. The outer column is clamped to the post in any position through a heavy V clamping ring.

The base is a heavy slotted floor plate with an extension at one side for the work table. The standard work table regularly furnished is of box section, slotted on the top and one side. The usual range of angle drilling can be done, using the standard work table and swiveling the drill head. A tilting and revolving table, however, may be substituted when so specified.

The Board of Consulting Engineers of the Panama Canal Commission in deciding November 18 upon the type of canal that should be constructed across the isthmus was divided between a sea level canal and one with locks at an elevation of 60 feet. All other proposed plans

were rejected. The sea level canal, the board estimates, can be constructed in fifteen years at a cost of about $230,000,000. The lock canal would take twelve years and cost about $190,000,000. The majority of the American members of the board favored a lock canal.

The Duluth, Missabe and Northern Railroad.

The increase in facilities of some of the railroads that haul iron ore from Lake Superior mines to docks has been something remarkable. These roads are steadily adding to their equipment and expect to handle a business in 1906 that will far surpass anything done in previous years. Their traffic is a peculiar one, as it has limitations that are unique and problems that are difficult of solution. It is a special form of traffic that requires special facilities. The capacity of a road in the ore trade is not based entirely, nor primarily, on its rolling stock, motive power, trackage and terminals, but on the regularity of delivery from the mines to the railroads and on the steadiness of shipping, which may be delayed by storm or unloading difficulties or any other cause that may prevent it taking ore as fast as the docks fill with it.

The Duluth, Missabe & Northern Railroad has taken first place in the ore business from mines to upper lake ports. It will ship this year about 8,500,000 gross tons, and is making improvements and additions that will fit it in 1906 to move with the utmost ease the enormous total of 10,000,000 tons. This is in addition to its general traffic in merchandise, coal, logs, lumber, &c. In logs and lumber the road has a business amounting to hundreds of millions of feet per year.

A Huge Ore Shipping Pier to Be Built.

This road is now preparing to build an ore shipping pier at Duluth that will cost, with approaches, $1,000,000 and will be the largest dock of its class in the world. Many new features will be adopted in its construction. Detail plans are not completed, but the dock is to be 2336 feet long, aside from approaches, and will require upward of 12,000,000 feet of timber, which will be mostly Western fir. The general plan of construction of an ore shipping pier on the lakes is familiar to all ore men. There is a high structure surmounted by railroad tracks running its full length, in the upper part of which are pockets for storing ore, these pockets being arranged to slide the ore forward to the face of the dock and out of a chute at their lower point to the hold of the waiting ship. These pockets are therefore of triangular shape, with the lower point at the face of the dock. The hight of this lower point, or hinge hole, governs the size of ship that can lie below the dock and receive cargo. The combination of great hight of load above foundation —these docks rise 60 to 70 feet above water line and have 22 feet of water at their feet—and of moving load longitudinally of the docks is severe upon the timber structures and necessitates very strong bracing.

The proposed dock of the Duluth, Missabe & Northern is to be 42 feet to hinge hole, which is a greater hight above water for the low point of the load of ore than any other pier. These hights have varied in docks now in use from 25 to 40.6 feet. The former is the hight of the older dock of the Duluth, South Shore & Atlantic and bars any large ships from that dock. The Milwaukee and Northwestern roads at Escanaba, the Wisconsin Central at Ashland, the Great Northern and the Duluth, Missabe & Northern at Duluth have docks with a hight of 40 feet to hinge hole. The new pier is to be 72 feet to base of rails on the deck, thereby exceeding any but two of the Great Northern, which are 1 foot higher. It is to be 57 feet wide.

Details of Pockets and Tracks.

There are to be 384 pockets, having a total storage capacity of 90,000 gross tons. The pockets will not be narrowed to a 3-foot chute at the discharging end, but will be fitted with the Carter patent door and wide chutes, the door in three sections, 11 feet in width, and the chutes corresponding. This style is in use at No. 6 dock of the Northwestern road at Escanaba. It is estimated that by thus retaining the full width of pocket to its acute angle there will be added to the storage capacity of this dock about one full modern cargo, while the wider doors will prevent wet and sticky ore clogging in the gates. The chutes will be fitted with Denton patent counterbalance hoists.

The pockets will be shod around their corners with steel angles, and the weight of iron in the structure will be far heavier than ever known. Customary trackage on modern ore piers consists of a set of four rails, even spaced, running the length of the dock, over each side. This gives three tracks over each set of pockets, the two outside or the one center available for use simultaneously. In this dock there will be four rails, but spaced for two tracks only, as it has been found unnecessary with the 50-ton loads of modern ore cars to trim the pockets by dropping loads between the tracks. This will give a four-track system on the dock. There will be a double track approach, with independent connection to the main line, running level to the deck of the pier. At the outer end will be a concrete monolith instead of the usual rock filled timber crib. The entire dock will rest on pile foundation.

This dock will be ready for use some time early in the summer of 1906. It will give the road a storage capacity of 298,000 tons.

New Rolling Stock.

This road has increased its order for steel hopper bottom cars for 1906 from 750 to 1000, and will then have an equipment of 3200 50-ton steel and 1800 35-ton wood cars and 70 locomotives. All its main line from mines to dock is now double track, with the exception of 18 miles of a long tangent through a level swamp. Authority has just been given the road to double this and the work will be carried on during the winter. Its new western Mesaba line is expected to be ready for operation early next summer, and will be if no accidents occur to hinder. This line is 55 miles long, besides branches, and includes some heavy construction. It leaves the main line at Alborn Station and strikes as directly as possible northwest for the new town of Bovey. From there branches will reach various mines. It has been hoped that 1,000,000 tons of ore might be shipped over this line in 1906, but there seems now little prospect of this.

The road has built large shops at Duluth, and has just let contracts that will nearly double them. These shops are fitted for the repair and reconstruction of steel cars and their tool equipment is very different from what is usual in car shops. A large storehouse for locomotives is included in these buildings, in which engines after repairs can be stored during the winter or when otherwise not in use.

This road for 1905 will have a gross income of about $8,000,000. For a railroad whose most distant terminals are only about 80 miles apart this is a very satisfactory showing.

With all outlined improvements completed the road can easily move during the ordinary season of navigation upward of 10,000,000 gross tons of ore, and the money now being spent to reach this possibility amounts to more than $4,250,000. The road belongs to the United States Steel Corporation, and most of the ore it hauls is for the furnaces of that company. Its president is Wm. J. Olcott, who is also general manager of the mining interests of the corporation, and its vice-president and general manager is W. A. McGonagle, who has been associated with iron ore roads since he assisted Charlemagne Tower in the survey of the Duluth & Iron Range line in 1883.

D. E. W.

The November meeting of the Chicago Associated Foundry Foremen was held in Science Hall, Armour Institute, November 14. The speaker of the evening was W. M. Carr, of the Goldschmidt Thermit Company, New York, who made a very elaborate demonstration of the use of thermit. Before the lecture the foremen spent about an hour and a half in visiting the various departments of the institute. About 350 were in attendance. The next meeting of the association will be held December 16 at the Grand Pacific Hotel. Harry S. Vrooman, Chicago, will present a talk on "Sand."

The Eberhardt Spur and Bevel Gear Cutter.

The illustrations show the new gear cutting machine built by the Eberhardt Brothers Machine Company, Newark, N. J. This machine was designed as a semiautomatic machine to cut light and medium sizes of spur and bevel gears. The machine has a capacity of 20 inches diameter and 5 inches face and will cut 8 diametral pitch in steel from the solid and six diametral pitch in cast iron from the solid. Fig. 1 shows the complete machine and as set for spur cutting, and Fig. 2, the setting for cutting bevel gears.

The operation is simple and convenient. The cutter is fed through the work by power, the feed being released automatically at the end of the cut. The operator then returns the cutter slide and indexes the blank before engaging the feed for the next space. The indexing is performed in an entirely different manner from that employed on milling machines, where the operator is required to make a certain number of turns and a certain number of holes. That method is necessarily slow and offers frequent chance for errors in setting and operating. On this machine the operator only turns the index handle one or more full turns, change gears being provided for the different numbers of teeth.

The index wheel is a special feature of the machine. It is of large diameter and is made with the rim in two sections divided in the plane of the wheel. One section is integral with the wheel and the other is in the form of a ring bolted to it. The wheel is hobbed in place by a

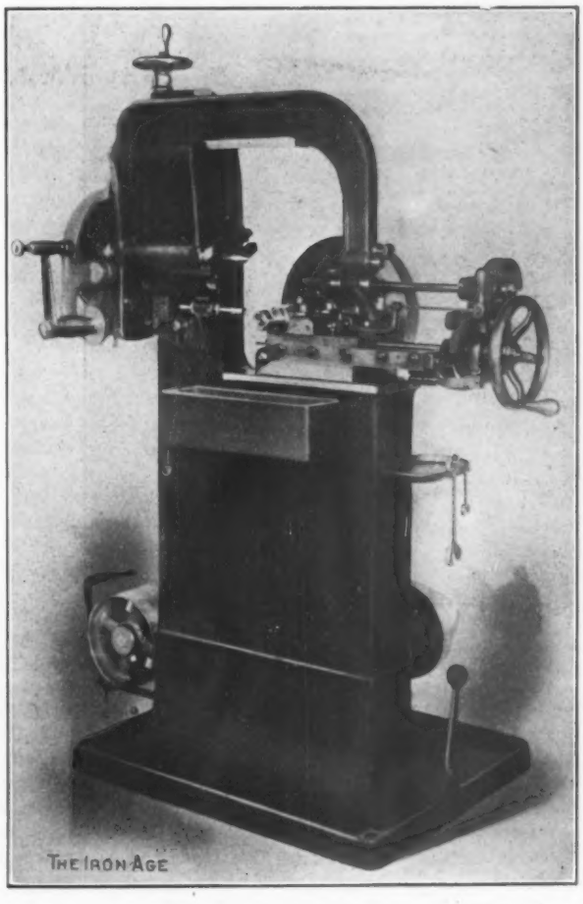


Fig. 1.—The Eberhardt Gear Cutter, with the Work Slide in Position for Cutting Spur Gears.

method which insures the highest accuracy in the divisions. In the hobbing operation as successively deeper cuts are taken the ring section is revolved to different positions, which has the effect of attenuating the percentage of error in the divisions until the finished wheel is practically perfect in the uniformity of its teeth. It is said to be so perfect that when the teeth of the two sections are matched at different positions the line of contact is invisible. This makes the dividing worm wheel on each machine an original "master wheel."

The steel work spindle is of large diameter and is provided with a number ten B & S taper hole, for receiving the work arbors. A draw-in bolt takes in and ejects the work arbors positively without any hammering. A live center with dog driver is also furnished for holding work on centers, in connection with the outboard support. This permits of cutting gears upon the ordinary or lathe mandrels and also cutting solid pinions, fluting taps, reamers and all work which must be done on centers.

For cutting bevel gears the cutter slide is adjustable to an angle of 90 degrees by means of a graduated quadrant. The lower slide is adjustable for various lengths of hubs. Micrometer dials are provided to facilitate the setting of the cutter and adjusting the blank in cutting bevel gears.

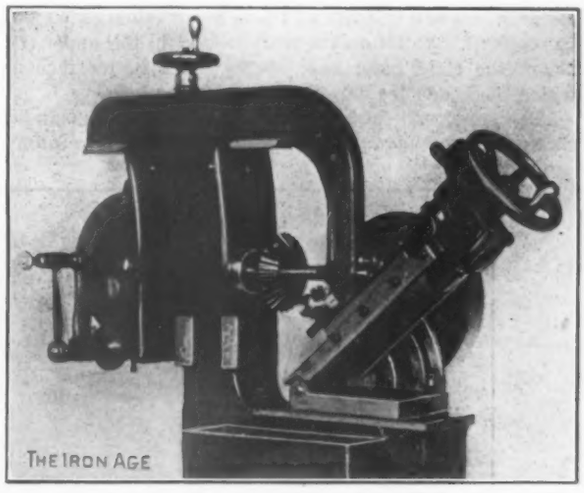


Fig. 2.—The Setting of the Cutter for Bevel Gear Cutting.

The cutter spindle pulley has its bearing upon an extension sleeve from the supporting casting and not upon the spindle, thus relieving the spindle of the belt strain. The spindle extends through a hole in this sleeve and is loosely keyed to the driving pulley. In a similar way the countershaft loose pulley on the base of the machine runs upon a cast iron bush, avoiding liability of the machine starting accidentally, as is possible when the pulley runs upon the shaft itself. The belts are made endless, means being provided for adjusting and maintaining proper belt tension.

The machine is entirely self contained, being driven by one belt directly from the line shaft or a constant speed motor. The base is formed to serve as a pan to keep the floor free from oil and chips. A chip box is provided directly under the cutter. This size machine is also made entirely automatic for spur and bevel gears.

It has been found by actual experience that a boy can turn out the class of work for which this machine is designed in competition with higher priced automatic machines and without in any respect sacrificing the quality or accuracy of the product.

The Worcester Metal Trades Association, Worcester, Mass., held its annual fall dinner at the State Mutual Restaurant in that city, Tuesday evening, November 14. President F. E. Reed was the toastmaster. The dinner was the best attended of any in the history of the local association. The features of the after dinner exercises were talks by Thomas E. Durban, Erie City Iron Works, Erie, Pa., on "Labor and Capital," and L. D. Burlingame, Brown & Sharpe Mfg. Company, Providence, R. I., on "The Apprentice System."

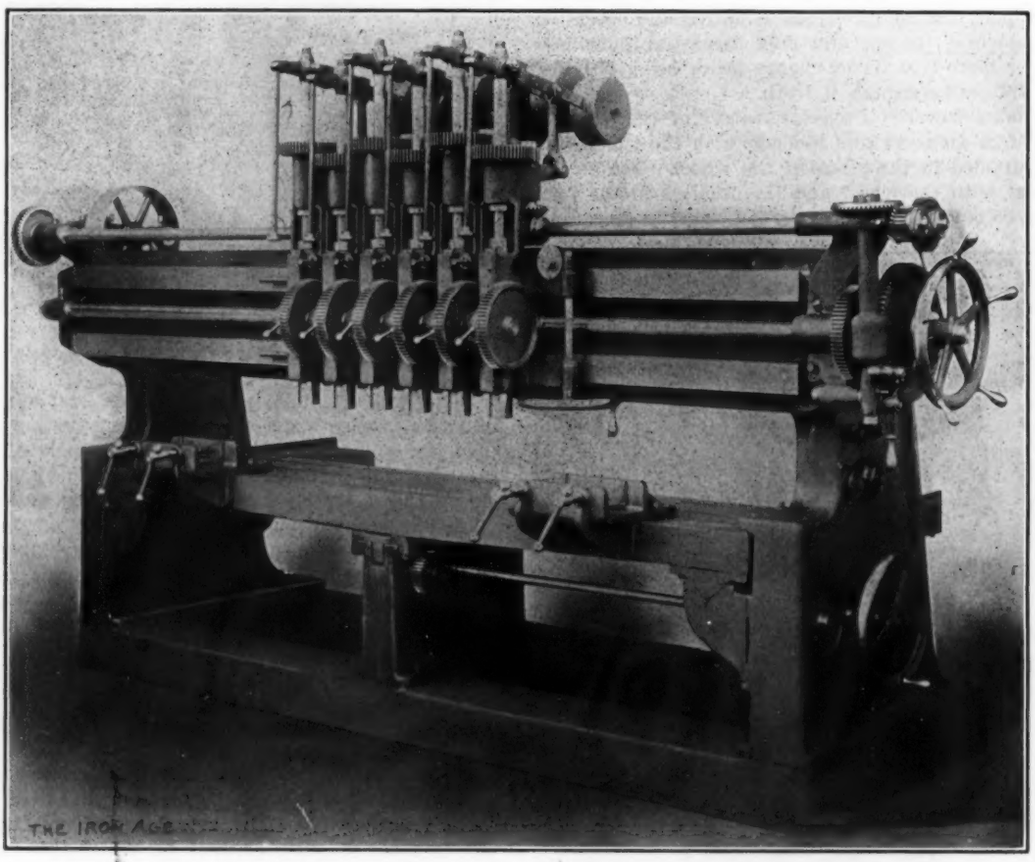
The Westinghouse Electric & Mfg. Company, Pittsburgh, Pa., has just perfected a portable pipe thawing transformer of 5 kw. capacity, also a choke coil to work in connection with standard 15 to 20 kw. lighting or power transformers, thus making standard capacity transformers available for thawing purposes in winter. The company has issued some interesting printed matter describing this apparatus.

The Bickford Mud Ring Drill.

Herewith illustrated is a new mud ring drill which the Bickford Drill & Tool Company, Cincinnati, Ohio, is just placing on the market. The principal feature of the machine is that while it was designed especially for mud ring drilling it is equally well adapted to all operations of multiple drill work. Instead of the heads sliding on an auxiliary rail, as in the ordinary construction, they adjust directly on the main rail, which enables them to be spread to any desired center distance, each head being provided with independent adjustment. For mud rings or other similar work where it is desirable that the heads should adjust collectively the heads are clamped together by means of two quick acting nuts which fix the center distance between spindles at 7½, 8, 8½ or 9 inches, as may be required. A dial on the worm wheel in the upper corner of the right hand head shows the distance through which the heads are moved to the right or left.

The speed and feed changes are obtained by means of change gears which are held in position by spring plungers, thus enabling the operator to change quickly from one speed or feed to another without lessening the available power of the machine. A dial on the large worm wheel at the right shows where to set the dog to trip the feed at any desired depth.

The spindles are 1 13-16 inches in diameter, have a vertical movement of 12 inches and work to a maximum center distance of 26¼ inches. The table has a transverse movement of 24 inches and with a 12-foot rail receives between the housings work up to 10 feet 6 inches wide. Driven by a constant speed pulley, the power is never less than that obtainable from a 5-inch double belt running at 1696 feet per minute. The net weight of the machine is 17,500 pounds.



A New Mud Ring Drill Built by the Bickford Drill & Tool Company, Cincinnati, Ohio.

The iron and steel imports of Great Britain in the first ten months of 1905 were 1,065,430 gross tons, against 1,087,809 tons to Oct. 31, 1904. Exports of iron and steel in the same period were 3,099,054 tons in 1905, against 2,705,663 tons in 1904, a gain of more than 14 per cent. A large part of the gain is in pig iron, of which the increase was 150,000 tons. This increase came mostly from the demands of the United States, 151,583 tons of British pig iron having been shipped to this country to October 31 this year, as against 47,185 tons in the like period last year.

A Large Allis-Chalmers Turbine.

The Brooklyn Rapid Transit Company is now installing the machinery in the sixth of its large power plants, which will eventually contain nine steam turbo-generator units. One of these that is now being erected is of 9000 horse-power and was built at the West Allis Works of the Allis-Chalmers Company. It is of the horizontal multiple expansion parallel flow type familiar in the Parsons turbine and will be direct connnected to a Bullock alternating current generator, driving it at 750 revolutions per minute.

The blading of the Allis-Chalmers turbine is an interesting feature. The blades are made of a special alloy and of a form and size calculated to secure the highest economy. They are mounted in groups, each forming a semicircular row. The inner ends of the blades are swaged and are firmly secured in slots in foundation rings and riveted in slots in channel shaped shrouding rings. In this particular the construction is somewhat similar to that employed in the Willans-Parsons turbine described in *The Iron Age* November 9, 1905.

The turbine and generator set will occupy a floor space 47 feet long by 13 feet 3 inches wide and the greatest hight above the floor will be 11 feet 6 inches. It is interesting to compare the space occupied with that which would be required by a reciprocating engine of equal capacity. Such an engine would frequently be more than 30 feet above the engine foundations and if the station were occupied with engines instead of turbines the engine room would occupy about 60 per cent. of the total ground space, leaving 40 per cent. for the boiler section. In this new turbine plant the turbine floor occupies but two-thirds as much space as is devoted to the boilers.

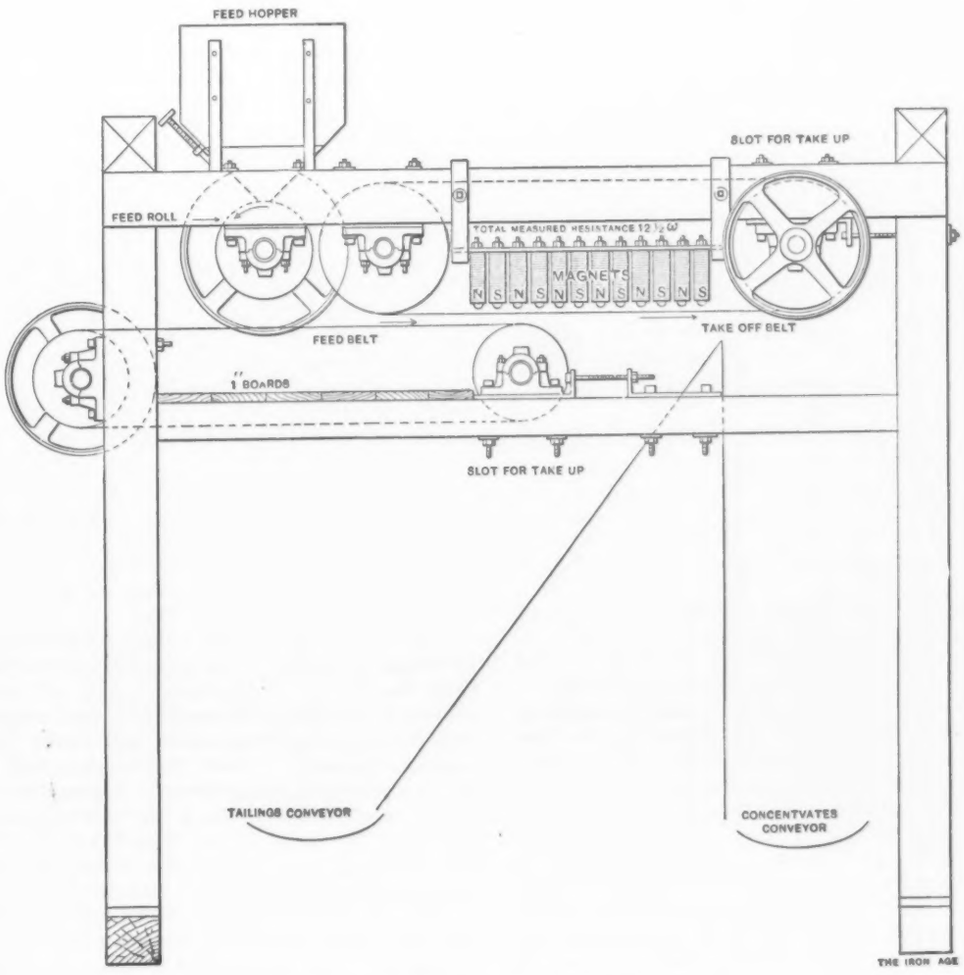
The Ball & Norton Belt Type Magnetic Separator.

Capacity, simplicity and effectiveness are three elements in machine design so radically opposed that one or more must usually be sacrificed to meet the desired end. Magnetic ore separators have been no exception, with usual high costs in time, expenditure and repairs to keep them operating passably well under actual mill conditions.

There has been developed at the plant of Witherbee, Sherman & Co., Mineville, N. Y., a magnetic separator which combines the elements of capacity, simplicity and effectiveness to the highest degree. This machine is used in the separation of strongly magnetic substances—namely, magnetite from apatite and silicious gangue. The well-known Ball & Norton principle, from which the machine takes its name, has been used in the magnetic element—that is to say, the magnet is a series of poles whose polarity is alternately north and south. The action of a particle in such a field is to turn the magnetic material end over end with a jigging action. Indeed, with the present form of machine the analogy to a jig turned upside down is perfect, and the machine might well be called a magnetic jig. This constant agitation of the magnetized mass of ore allows the entrained particles of gangue to fall free from the magnetic ore, with a thorough cleaning of the ore concentrates.

With this preliminary explanation of the magnetic action we will trace the course of the ore through the machine, a diagramatic view of which is here shown.

The ore is suitably delivered to the feed hopper in such manner as to keep the hopper full, so that a constant feed may be delivered to the feed belt by the feed roll, which makes from 15 to 20 revolutions per minute, the depth of feed being regulated by a sliding gate in the side of the feed hopper next to the feed roll. The stream of ore delivered by the feed roll is uniformly distributed over the feed belt. This belt carries the ore into the influence of the first magnet of the series, and here it begins to rise, striking the take-off belt between the first and second magnets, and is held in suspension by the magnets as it travels across their face on the under side of the take-off belt. At the time of rising from the feed belt part of the gangue remains on the feed belt and is thrown into the tailings directly, but part is entrained in the magnetic mass of ore and weeps out as the jigging action occurs in passing into and out of the influence of pole to pole. The gangue thus freed drops into the tailings compartment to mingle with that from the feed belt. The magnetic ore mass is delivered by the sustaining action of the magnetic field and the forward motion of the take-off belt into the receptacle for the concentrates.



The Ball & Norton Belt Type Magnetic Separator.

Conveyor belts may be run directly under the machine to receive the tailings and concentrates.

The machines at present in use are provided with twelve magnets, whose strength is uniform, the current flowing being controlled by a rheostat. By dividing the magnet into two or more sections, each provided with a rheostat, any degree of concentration can be had, as, for example, the well-known three-part separation of tailings, middlings and concentrates.

The feed and take-off belts are rubber, with three and two ply canvas, riveted together with copper rivets on a 6-inch lap. Endless belts have been tried, but for mill use the riveted lap has been found to answer the purpose.

The adjustments on the machine are easily made, take-ups being provided to care for the stretch in the feed and take-off belts, and may be operated with the machine running. By placing wooden shims under the bearings of the pulley of the feed belt directly under the magnets the feed is moved into an increasing strength of magnetic field. The rheostat permits a variation in the magnetic strength in proportion to the current flowing in the cir-

cuit. The take-off belt is run at a greater speed than the feed belt, so that the magnetic mass of ore is spread out more thinly per unit of surface. The speeds of belt travel must be determined experimentally for each ore. Those whose magnetic permeability is small and those where the sizes treated are large require a slower speed than those of great permeability and small size.

At Mineville this machine has treated ore particles of ½ inch and under with satisfactory results. The average hourly capacity is from 20 to 25 tons up to and including material which will pass ¼-inch sieve. These results have been maintained for two years and under favorable conditions of dry ore could readily be kept up to 30 tons per hour. On one test when the ore was run through the mill at the rate of 144 tons per hour the machines took care of the material with no decrease in the quality of the product, this being an output of 36 tons per hour, four machines being used.

Each part of the separator is accessible and can be inspected at all times. The magnets can be renewed when burned out and new belts put on in not to exceed one-half hour of delay. The fact of the magnets being open gives free circulation of air and consequently lower temperatures of operation. It cannot be too strongly stated that mill conditions are not those of the laboratory and machines must be built to run smothered in dust and grit; they must be made fool proof and the time required for repairs must be a minimum and the repairs inexpensive. Repairs, including the material and time lost in ore treatment, always form a large item of expense from the drastic nature of the work and any reduction is welcome. This machine is designed on the sectional plan, with the wearing parts as uniform units. readily handled by one man.

The first use of these separators was in the treatment of a high phosphorus magnetic ore, in which it is necessary to keep the phosphorus in the finished product at about 0.6 per cent., the phosphorus in the crude ore ranging from 1.35 to 2.25 per cent. This variation is occurring constantly throughout the day. The iron likewise is kept practically uniform in the concentrates at from 66 to 67 per cent. These analyses are the daily averages over the period of two years of operation of this machine.

To sum up, the advantages of the Ball & Norton belt type separator are its large capacity, being from two to three times that of other machines in practical operation to-day, with the exception of the Ball & Norton drum type separator, which it exceeds; its construction, so simple that it costs from one-third to one-half as much to build as other separators; its repairs, cheaply and quickly made; its accessibility, all parts of the machine being open to inspection at all times, and, greatest of all, its thorough reliability in the quality of the product. While the range and possibilities of this separator are of the greatest, the method of treatment of any specific ore must be indicated by competent authority, so that the material may be delivered to the machine in condition to obtain the results desired.

The Riverside Engine Company.—Edward Gray, formerly vice-president and general manager of the Gray-Blaisdell Company, and late with the Bovaird & Seyfang Mfg. Company, both of Bradford, Pa., has purchased from J. B. Smithman an interest in his engine works at Oil City and has assumed charge of the plant. The firm will be known as the Riverside Engine Company, and will manufacture a line of large gas engines and air and natural gas compressors. The present plant, which consists of a building 70 x 180 feet, has been in operation since August 1, and two steel concrete fireproof buildings, each 60 x 120 feet, are being added; the former being an erecting shop containing a 30-ton electric traveling crane, while the latter is two story and will contain power house, pattern shop and shipping department. In the early spring an additional building 60 x 180 feet will be added to the present machine shop. A number of new tools have been added and several planers, lathes, a large boring mill, a horizontal spindle drilling, milling and boring machine, motors, arc lights, several traveling cranes, radial drills, hot blast heating apparatus and a number of small tools will be required. The company is building a large gas engine of a new design, several of which are in successful operation and a number are in process of manufacture.

Economy in Naval Expenditures.

WASHINGTON, D. C., November 21, 1905.—It is semi-officially announced that the Secretary of the Navy in his forthcoming annual report will recommend a very modest programme for the increase of the navy, rejecting the suggestions of the General Board for the construction of a number of 18,000-ton battle ships, and will incorporate a series of estimates upon which a naval appropriation bill can be framed carrying less money than that passed at the last session, the total of which slightly exceeded $100,000,000. This decision of Secretary Bonaparte is in line with the desire of the Administration to keep the current Treasury deficit down to the lowest possible figure with a view to avoiding tariff or revenue legislation in the coming Congress.

Recommendations of the General Board.

The General Board has devoted a great deal of attention during the past summer to a study of the current naval programmes of the leading maritime powers, and has reached the conclusion that in order to keep abreast of this development the United States should build several 18,000-ton battle ships. It has therefore recommended that estimates be prepared for three vessels of this class to be authorized in the next annual appropriation bill and also that Congress be requested to order an increase in the size of three 16,000-ton battle ships recently provided for to 18,000 tons. The acceptance of these recommendations would mean the addition to the navy in a few years of six battle ships larger and more powerful than any vessels heretofore built by the United States and quite as formidable as any war ships now afloat. The batteries of these vessels would be composed of guns of a larger proportionate caliber than those now installed on 16,000-ton battle ships, although the secondary batteries would be numerically smaller.

This programme appeals very strongly both to the Secretary of the Navy and to the President, who takes a lively interest in building up the navy, and especially in keeping it abreast of the navies of the world; but the cost of such an addition as is proposed by the General Board is regarded by both the Secretary and the President as absolutely prohibitory. It has therefore practically been decided to build the 16,000-ton battle ships authorized by Congress and to prepare an estimate for one additional battle ship to be provided for in the next appropriation bill. Congress will probably be asked to authorize this vessel to be of 18,000 tons and of the heaviest practicable armament consistent with a reasonable radius of action. Other minor recommendations for small vessels will also be submitted, but the item for the "increase of the navy" in the next appropriation bill will probably be smaller than for several years.

To Increase Naval Efficiency.

Secretary Bonaparte has given close study to the problem of steadily increasing the efficiency of the navy without adding materially to the annual expense of maintenance. He has found by investigation that the cost of keeping up certain vessels of almost obsolete type is nearly if not quite as great as that of maintaining the most modern war ships and he therefore proposes to add new, up to date vessels to the navy about as rapidly as the old ships are put out of commission. This programme, it is believed, can be carried out with very satisfactory results and without any material increase in the *personnel*. While the auxiliary machinery on a modern war ship is more complicated than that on vessels of the older types, yet the installation of automatic and labor saving devices has kept pace with the general development and a ship's company to-day is no larger ton for ton than it was several years ago, although unquestionably composed of men of much greater skill and special knowledge.

The Secretary of the Navy believes that as a part of the general plan of increasing the efficiency of the navy

without adding materially to the annual cost of maintenance advantage should be taken of all the latest improvements in marine architecture and motive power. He is especially interested in the adoption of turbine engines and in the use of fuel oil, and quite agrees with Admiral Bowles, late Chief Constructor of the Navy, who recently expressed the opinion that the great problem to-day is how to get speed without sacrificing defensive armor, the solution of which will probably involve the perfecting of automatic stokers and the adoption of turbine engines and fuel oil.

Use of Liquid Fuel.

The fuel oil is one to which the Navy Department will probably again devote its attention during the coming year. The special appropriation for the use of the Liquid Fuel Board has been expended and the results of the tests made by the Board have been published in an elaborate report. The work has now practically come to a standstill, although the board recommended for the practical determination of certain features of the problem, the equipment of a coast defense monitor with a complete liquid fuel installation. This experiment is one that is desired for a variety of reasons, and especially because if the results should be satisfactory no difficulty would be found in providing supplies of fuel oil for vessels whose operations would be confined to home waters. The problem of handling and storage under service conditions of fuel oil cannot be worked out on small vessels like torpedo boats and destroyers, but could be determined by a series of tests on a monitor. The Navy Department is now considering the installation of turbine engines in a 16,000-ton battle ship and many of the engineering experts believe that the next forward step will be made in the use of liquid fuel on these big fighting machines.

W. L. C.

Percentage of Air-Braked Cars Increased.—The Interstate Commerce Commission has issued an order regarding railroads to use air brakes on at least 75 per cent. of the cars in every freight train. The minimum percentage of air-braked cars in freight trains at present is 50. Hearings were recently given to a number of railroads which protested against the proposed change. The coal roads in particular objected, saying that in many instances it was necessary to delay loaded nonair-braked cars 24 hours in order to comply with the 50 per cent. minimum rule in making up trains. This, it was said, was largely due to irregular loading by shippers, the cars part air and part nonair having to be distributed for loading at a great many comparatively small loading points. The principal argument of the railroads was that as traffic conditions are now abnormal in the pressure upon the railroads the requirement that three-quarters of the cars in all trains should be air-braked would work great hardship to shippers and consumers. The order just issued naturally means great activity for air brake works.

Referring to the fact that the problem of the unemployed is still acute in the East End of London, *Engineering* says that this has been accented by the determination of the Yarrows to remove their shipyard from the Thames. Thirty or forty years ago shipbuilding on the Thames was declared to be in a ruinous condition. Since then matters have grown worse. Apart from the high wages of London, shipbuilders there are handicapped by the increasing dearness of land, by high local taxes, which are growing higher at an alarming rate, and by high freights on coal, iron and steel.

The "Maximum Surface Contact" system of electric car propulsion was given a test on the tracks of the International Railway Company at Niagara Falls November 15 and the feasibility of the system was demonstrated. In the operation of this system no overhead trolley wires are used, the current which energizes the motor being obtained from beneath the car through a contact shoe arranged to take the current from contact boxes located at short distances from each other between the rails to which boxes the feed wires are connected. The system is the joint invention of W. M. Stephen and G. L. Campbell.

The Harvey Steel Royalty Cases.

WASHINGTON, D. C., November 21, 1905.—By a judgment just handed down by the Court of Claims the Carnegie Steel Company has been awarded $8,024.45 for royalties paid to the Harvey Steel Company for the use of the so-called Harvey process for face hardening armor. This process was employed by the Carnegie Company under the terms of a contract with the United States in which it was agreed that the Government should pay all royalties, but which it subsequently refused to do.

Basis of Claim.

The Harvey process of hardening armor plate was employed by the Ordnance Bureau of the Navy Department for a number of years on a royalty basis. The Government finally refused to pay royalties and withheld a considerable sum from the patentees on the ground that the patent was invalid, although it was conceded that the process was efficient and was necessary to the manufacture of plates possessing the highest ballistic resistance. The Harvey Steel Company, the owners of the process, then began an action in the Court of Claims to recover $60,806.45 alleged to be due in the form of moneys withheld under contracts with the Navy Department. The Court of Claims recently decided this case adversely to the Government on the ground that after having employed the process and having received from the Harvey Steel Company all the information necessary to produce the best armor plate known to the art it could not claim not to have received full consideration for the payments promised under the contract. In conclusion, the court laid down a proposition having a broad bearing upon patent litigation in which the question of the validity of a patent in involved in a claim for royalties, saying:

The Court Scores the Government.

"In a word, this is a case where a man without fraud or misrepresentation entered into a contract; where he received from the other party all that the contract promised him or that he expected to receive; where he kept his mouth closed when he should have spoken and withheld the defense when he should have interposed it; where by his silence and his words he misled the other contracting party and thereby deprived him of his legal right to the adjudication of courts of competent jurisdiction, which adjudication might be favorable to the other party and cost irreparable loss and injury to himself. Such a man is not entitled to set up in an action on the contract the defenses which the defendant's executive officers have insisted on interposing in this case. The court has not entered into an examination of the patent; of the construction which should be given it; of the state of the art or of any of those questions which would properly be subjects of consideration if this were an action for infringement." The court thereupon gave judgment for the entire sum claimed.

In addition to this suit of the Harvey Steel Company against the United States the Carnegie Steel Company began an action for $8,024.45 on account of royalties paid the Harvey Steel Company for the use of its process in the manufacture of armor for the Government. Before this case was taken under consideration by the Court of Claims the United States Supreme Court rendered a decision sustaining the court below in the case of the Harvey Steel Company vs. United States. The Court of Claims therefore promptly gave judgment in favor of the Carnegie Steel Company and will certify the decision to Congress for an appropriation at the coming session.

Upon a supplemental petition filed by the Harvey Steel Company the Court of Claims has given an additional judgment against the United States for $650,132.17, being the amount of royalties that have accrued since June, 1898, and up to September 30, 1905, on the basis of the findings in the original case of the Harvey Steel Company vs. United States above referred to. W. L. C.

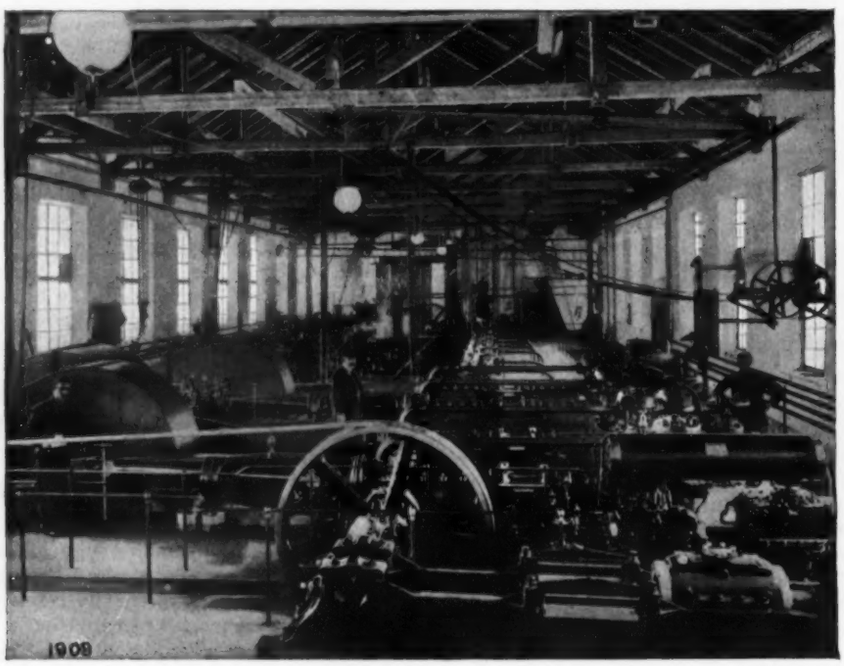
The Simplon Tunnel.

The Simplon Tunnel, which will ultimately connect Switzerland and Italy through the Alps, is an engineering undertaking of world wide interest. When completed it will be the longest of the great Alpine tunnels, having a total length of about 12¼ miles, whereas the St. Gotthard is only 9¼ miles long and the Mount Cenis Tunnel 8 miles. It is distinguished from the others by having two parallel tubes about 55 feet between centers. Eventually each will contain one track. The bore is straight, with a knee at the north end on account of the proximity of the Rhone River at the town of Brigue and another at the southern extremity due to the nearness of the Divernia, just below the town of Iselle.

The track at the north portal is about 2250 feet above sea level. From this point the tunnel rises with a 2 per cent. grade until the apex is reached almost exactly beneath the boundary between Swiss and Italian territory. This highest point is about 2325 feet above the sea and the bore falls hence with a 7 per cent. grade to the southern entrance at an altitude of about 2100 feet. The mountain over the tunnel is 7000 feet high and the thickness of rock above the tunnel at the apex is greater than that over any other tunnel ever built.

The method of building provided for the completion of the easterly tunnel as it was driven, while simultaneously only the floor heading of the second or western tunnel was carried along. The two bores are joined at intervals of 650 feet by cross galleries or laterals. While the two tunnels will ultimately be of the same size, it is the plan to finish only one at the present time and enlarge it near the middle for a distance sufficient to permit trains to pass. When traffic increases so as to demand it the second bore will be fully completed. An especial advantage of the double tunnel scheme developed in the course of construction in permitting a very effective system of ventilation. A very high temperature was encountered as the work progressed and in order to make conditions more tolerable fresh air was forced in by powerful fans at the rate of about 1250 cubic feet per second, entering heading No. 2, passing through the last lateral and returning outward through heading No. 1. Cross galleries or laterals were closed as the work progressed, only the advance opening being kept clear. Even with such a circulation as this it was found necessary to still further reduce the temperature at the face by sprays of cold water and for this purpose a great system of refrigeration was installed. The temperature of the rock in the tunnel was 55 degrees C., but the cooling devices maintained the air temperature at from 25 to 30 degrees C.

The construction of the tunnel was carried on simultaneously from both ends. The heading starting on the Swiss side at Brigue was pushed beyond the apex to a point on the Italian side about 6½ miles from the Swiss portal. At this time the Italian heading had been advanced to within about 800 feet of the other heading and there remained this thickness of rock to be penetrated before the mountain was pierced. At this point in September, 1904, unexpected obstacles to further progress were encountered, necessitating the abandonment of work on the Swiss side and seriously impeding operations in the Italian heading. These were springs of hot water at 45 degrees C. opened almost simultaneously in the two headings, those on the Swiss side flowing about 489 gallons per minute, those on the Italian side 860 gallons per minute. The volume and temperature of this water in the Swiss heading, together with the destruction of the cooling plant for that section by a landslide forced complete suspension of operations at that side. The work was completed by driving through the Italian heading, but here again operations were seriously impeded and the rate of progress cut down to a mere fraction of that normally maintained. When measurements showed that only a thin wall, which could be removed with one blast, intervened between the two headings work was suspended until the greater part of the accumulated water on the Swiss side could be pumped out. Then the blast was fired, making an opening through which the remaining water rushed out to the Italian portal. This occurred February 24, 1905, and this date marks the culmination of the greatest tunneling enterprise ever attempted. The work was started in August, 1898.



Interior of the Brigue Power House, Showing the Hydraulic Pumps and Air Compressors Used in Driving the Simplon Tunnel.

Power for the Simplon work has been furnished by two plants of about 2000 horse-power each, driven by water power, one at either end of the tunnel. The method of tunneling was radically different from that familiar in this country. Instead of compressed air rock drills the Brandt system of hydraulic rock drills was used. Instead of chipping away the rock by hammer blows it was ground away by cutters under tremendous pressure. Instead of the familiar air compressor plant there were immense high pressure pumps driven from water wheels. The ventilating fans also are driven by water power. The tunnel section was enlarged by hand drilling.

Compressed air, however, was used in operating locomotives handling construction trains in the tunnels. The illustration shows the interior of the power house at

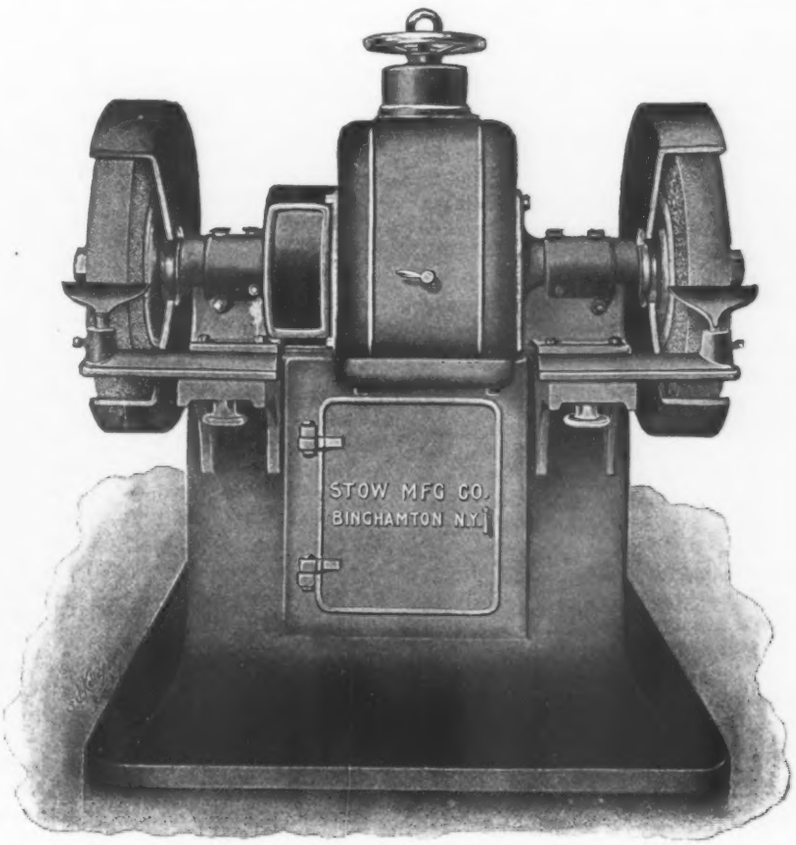
Brigue, Switzerland. In the background are the pumping engines and in the foreground are two Ingersoll-Sergeant air compressors. One of the latter has been in operation several years and when the demands grew beyond its capacity a duplicate was installed. This second compressor is shown in course of erection. Both machines are belt driven from water wheels and are of the three-stage "straight line" type, with water jackets on the low pressure cylinder, horizontal intercooler, and water box submerged high and intermediate pressure cylinders. They deliver air at 1500 pounds pressure and at normal speed, 140 revolutions per minute, each compressor has a free air capacity of 121 cubic feet per minute.

While one of the largest and most difficult tunnels, the Simplon was by no means the most expensive. Its cost thus far, exclusive of installation charges, has been about $210 per lineal foot. In driving it 10,000 men have been continuously employed, 4000 on the Swiss side and 6000 on the Italian section. The section of the completed tunnel is of horseshoe shape, 13½ feet wide at the bottom, 16½ feet at the spring line and 18 feet high in the clear above the rails. It is lined with concrete and masonry throughout, the enormous pressure in some places calling for a lining 6 feet in thickness. The heading carried forward in the second and uncompleted bore is 6½ feet high and 10 feet wide. Just what power will be used to haul trains through the Simplon tunnel has not yet been made public, but a recent order by the Swiss Government for 160 cars with inclosed platforms seems to indicate that, for a time at least, steam will be used. A leading Swiss firm has made a definite proposal for an electric line, and there is this in its favor—that the electric installations at Brigue used during the tunnel operations could be economically utilized.

The Buffalo Forge Company, Buffalo, N. Y., is materially enlarging its plant to meet the requirements of greatly increased business in heating and ventilating apparatus and in plantation machinery, the latter consisting of sugar and rice mills made by the George L. Squires Mfg. Company, which it controls.

The Stow Electric Emery Grinder.

A new heavy electric stationary emery grinder for dry grinding, carrying emery wheels 24 inches diameter by 3 inches face, has been added to the line built by the Stow Mfg. Company, Binghamton, N. Y. For some time this company has been building a lighter tool, taking wheels up to 18 inches diameter, suitable either for dry or dry and wet grinding. It was described as a semi-portable grinder from the fact that it could be easily transferred from place to place inasmuch as the drive was entirely self-contained and there was no dependence upon line shafts and countershafts. The new grinder is similar in many respects, but is too heavy to be classed as a portable tool. It has, however, the same advantage of not being limited in location by the situation of shafting. Both types are driven by the Stow multispeed motor, which is familiar as the one in which speeds are altered by changing the magnetic field by sliding the cores of the field magnets.



The Stow 24-Inch Electrically Driven Grinder.

The mechanical construction of the Stow electric grinders does not differ very materially from that of other makes of emery grinders and may be easily understood from the accompanying illustration. It will be noted that the bearings are of ample proportions, that the wheels are protected with substantial guards and that detachable adjustable rests of simple form are provided. The principal claims are based on the manner of driving. The motor being mechanically regulated has the advantage of eliminating rheostats or other controlling devices of encumbering size or delicate nature. It is capable of an exceptionally wide range of speeds, but the point most emphasized is that the motor is not limited to a certain series of speeds; any speed between its maximum and minimum may be obtained. The hand wheel on top of the motor is geared to the four magnet cores and when given a fraction of a turn alters the speed by a corresponding amount. It is therefore possible to obtain, not an approximately correct speed for the work in hand, but the exact speed required. Starting and stopping is effected by turning the short lever on the side of the motor to the right or left. The motor is of strong construction and for that reason is peculiarly adapted

to tools of this class. It is only suited to direct current.

The tool illustrated can be furnished with either or both wheels arranged for wet grinding. For that use the wheels are encased and water tanks are hung below them which may be elevated by a screw to bring the level of the water in contact with the wheels, and catch pans are provided into which the spray is thrown and drains to the water tanks.

Annual Convention of Westinghouse Managers.

The annual meeting of the district managers of the Westinghouse Electric & Mfg. Company was held at East Pittsburgh, Pa., last week, continuing for four days. The first convention opened on Tuesday morning, November 14, R. L. Warner, manager of the New England territory, acting as chairman. E. M. Herr, first vice-president, welcomed the managers and was followed by Frank H. Taylor, second vice-president, who made a short address about the business of the company, emphasizing the fact that the business of this year will be the largest in its history. At the afternoon session F. H. Shephard read a paper on "Single Phase Electric Railway Systems."

At the Wednesday morning session a paper was read on "Steam Turbines," prepared by E. H. Sniffen, sales manager of the Westinghouse Machine Company; one by W. F. Zimmerman, the New York representative, on "The Banking Fraternity as Related to the Sale of Electrical Apparatus"; another by W. C. Kerr of Westinghouse, Church, Kerr & Co., on "Useful Co-operation." Other papers read were: "Recruiting and Systematic Training of Salesmen," by T. P. Gaylord of Chicago, and "The Air Brake as Applied to Electric Cars," by W. S. Bartholomew, the Western representative of the Westinghouse Air Brake Company.

On Wednesday evening the managers were entertained at a dinner given at the Hotel Schenley, Pittsburgh. Thursday was devoted to reports as to the business outlook in different parts of the country which were presented by the several managers. All of them were of a most encouraging character.

The sessions were concluded on Friday. Among those present were C. S. Powell, New York City; G. Pantalevin, St. Louis; T. P. Gaylord, Chicago; T. J. McGill, Minneapolis; C. W. Underwood, Buffalo; J. R. Gordon, Atlanta; L. U. Cargo, Denver; W. W. Briggs, San Francisco; C. A. Bragg, Philadelphia; H. H. Seabrook, Baltimore; G. B. Dusinberre, Cleveland; C. W. Regester, Cincinnati; M. P. Randolph, Seattle, and J. E. Johnson, Dallas.

Comparing the English bull-headed rail with the American flat-bottomed rail, the *Engineering News* says that while the English rail is more firmly held by its chair supports against forces tending to tip it or slide it laterally, it is entirely possible by the use of tie plates and screw spikes to make a track with the flat-bottom rail section quite as stable and safe as the English track. The English bull-head rail is very weak to resist bending stress compared with the American flat-bottomed rail. Every rail has of course to act as a girder to carry the wheel from tie to tie, and with its head in compression and its base in tension the flat-bottomed rail has its metal much better placed than the bull-head rail to take the tensile stress. This really determines the strength and stiffness of the rail, since modern high carbon rail steel is much stronger in compression than in tension.

A pamphlet 5½ x 8 inches, constituting the 1905 catalogue of the Krupp Works, describes the extensive plants and the various lines of products. Particular attention is paid to the ordnance works, and 73 full page illustrations are given, these dealing in the main with armor plate, guns of various descriptions and gun carriages. The foundries and machine shops are also described in considerable detail and a number of illustrations are devoted to the special equipment for handling materials. The plants described are the steel works at Essen and at Annen, the Gruson Works at Magdeburg-Buckau and the Germania Shipyard at Kiel. A colored plate shows the original Krupp Works of 1818.

Pacific Coast Trade Conditions.

SAN FRANCISCO, CAL., November 11, 1905.—There at present are two particularly notable features of our trade—namely heavy exchanges of the Clearing House and the steady increase of our trade with the Orient. The Clearing House exchanges the first week of the fortnight covered by these remarks show an increase of $10,000,000 over the corresponding week in 1904, and are nearly double that for the corresponding week in 1903. In fact, the increase in the clearings this year has been phenomenal and it has been much more marked in smaller cities than in San Francisco, which being larger is of slower growth. This gain in exchanges means a corresponding increase in financial operations and these latter reflect the gain in trade in general and that in real estate sales in particular. This city is growing at a great rate. The sales of real estate this year will fully equal $70,000,000, or nearly 50 per cent. over those of 1904. The greater part of this business represents realty that is being improved and comparatively little of it reflects speculation. Hence the great increase of trade in building materials, hardware, nails and structural iron and steel. The trade in these articles has exceeded by at least 30 per cent. that of 1904. In Los Angeles and other Coast cities the increase has been proportionately greater. Everywhere there is great development. For instance, the agency of one of the tube companies reports importations of over 23,000 tons of iron pipe, whereas a few years ago the total was only a fraction of this. There has, too, been great development in the manufacture of sheet iron pipe in this city, and it is used in increasing quantity both on the Coast and in the Hawaiian Islands, Mexico and other countries on the Pacific.

Little or no rain has fallen for months and farmers and merchants in this State are beginning to be apprehensive of results. But in two particular years there was no rain of any account until Christmas, and one year there was hardly any rain at all. Late rains will set the clouds going over a large area and start work at the mines again. Many of these are being closed down for want of water and many more are preparing to close down. This interferes with the sales of wire rope, machinery, &c, partially made up by the increased activity in the redwood lumber districts and also in the sugar and white pine districts. The absence of rain enables the plants in the lumber districts, particularly in Del Norte, Mendocino and Humboldt, to be carried on for a much longer period. Of course the dry weather is detrimental to the interests of the hardware trade in other lines than those connected with mines and has the effect of lessening improvements in the farming districts. This, however, has happened almost altogether in California and Nevada. In Oregon and Washington there have been big crops and a great trade is going on.

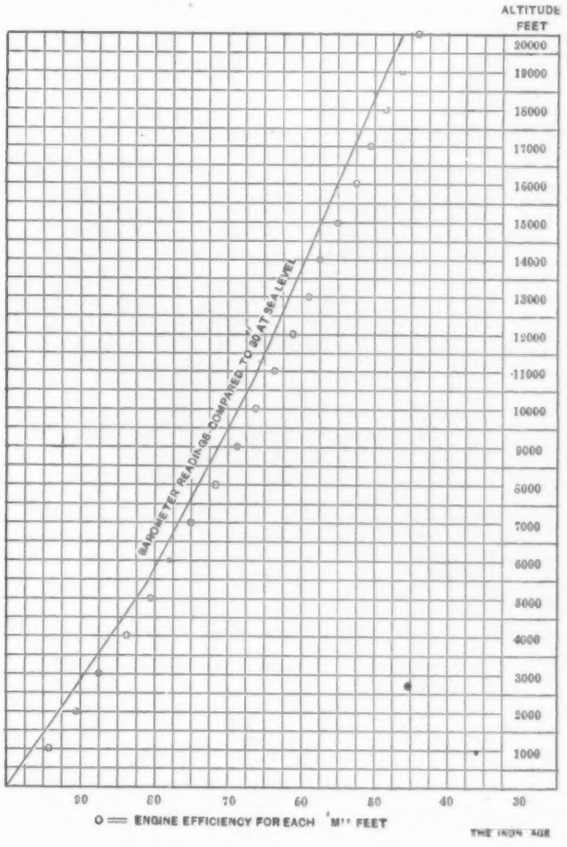
The export trade this year from San Francisco shows an increase of about $20,000,000 over 1904 for the first ten months of the year. The last three months of 1904 were, however, exceptionally good in the export trade and the total gain for San Francisco will be about $15,000,000 for 1905. The increase in the trade of other Coast cities will be greater. The gain here shown comes mainly from the countries of the Orient, but to some extent also from the Hawaiian Islands, which will show a gain of $1,000,000 in favor of this year as against its predecessor. The shipments of machinery have of late been very heavy, particularly to Japan. The last steamer, the Siberia, which cleared November 4, had locomotives valued at $172,000, which were shipped to Kobe. This is the second large shipment of the kind to Japan within a very short time. The same steamer took about 326 packages of machinery of various kinds for Japan, valued at $33,424. Altogether this steamer had, including China, Japan and Manila, nearly $210,000 worth of machinery, locomotives, &c.

There was shipped on the Ventura on November 2 $10,000 worth of machinery, principally for Australia and New Zealand, a great deal of it being engines, &c. The steamers to Honolulu have been taking a great deal of machinery of late. J. O. L.

Loss in Capacity of Gas Engines at High Altitudes.

Gas engines are of course tested and rated by their builders in their own works, and no attention is paid to barometric readings or changes in atmospheric pressure except in the case of engines of the largest size, and during tests in which all the influencing conditions must be observed. But the question becomes one of commercial importance when the engine is to be operated at any considerable elevation above sea level. The loss in capacity then becomes very evident, and unless this is thoroughly understood and explained before the erection of the engine there is sure to follow complaint that the engine has been overrated and will not develop the power for which it was designed and sold.

The trouble is not with the design of the engine, which has been constructed to operate at its maximum efficiency with a certain quantity of gas carrying a definite number of heat units. At each stroke, no matter what the elevation, the same volume of gas and air is admitted to the cylinder, but, owing to the expansion due to the elevation, the quantity of gas required to fill the cylinder is reduced and in like proportion the heating efficiency is



Power of Gas Engines at Various Altitudes.

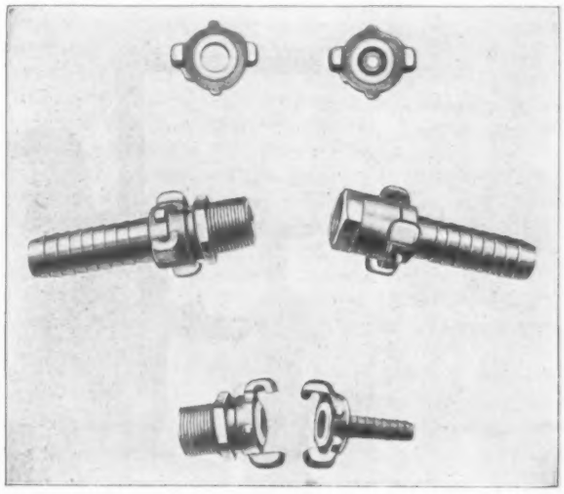
diminished. Even at slight hights the difference in operation between that and sea level is of considerable importance. From the usual barometric tables, with sea level taken as 31 inches, it will be found that 1000 feet corresponds to about 29.8 inches, 2000 feet to 28.7 inches, 5000 feet to 25.6 inches, and so on. At an elevation of 2000 feet nearly one-tenth of the heat units of the gas has been removed, and the capacity of the engine has been reduced to just that extent.

The importance of this question has been recognized by the National Meter Company, New York, which has prepared the accompanying diagram for use in connection with its Nash gas engines when used much above sea level. This gives the capacity of the engine for each 500 feet up to 20,000. The lower line begins at the left with 100 per cent. as the efficiency of the engine at the sea level and shows that an elevation of 5750 feet the efficiency is 80 per cent.; at 9500 feet 70 per cent., and so on for the greater hights.

To overcome the trouble by means of compressors to maintain a sea level pressure of both the air and gas would introduce a costly and awkward element. The problem admits of far easier solution, and that is by introducing a large cylinder capacity in order to obtain the required power. Knowing the conditions under which the engine is to operate, either the rating is reduced or a larger cylinder substituted. The diagram is a convenient means for determining this point.

The Chicago Hose Coupler.

To avoid the expense of a large stock of extra couplers to suit various sizes of hose used with pneumatic tools the Chicago Pneumatic Tool Company has designed the universal hose coupler herewith illustrated. It will be noticed that each of the two parts that couple together



Universal Hose Coupler Made by the Chicago Pneumatic Tool Company.

are exactly alike and will couple regardless of the size and style of the shank. The shanks are manufactured for pipe male thread, pipe female thread and hose in standard commercial sizes from ¼ to 1 inch, which enables all couplings to be made without resorting to reducers or special shanks.

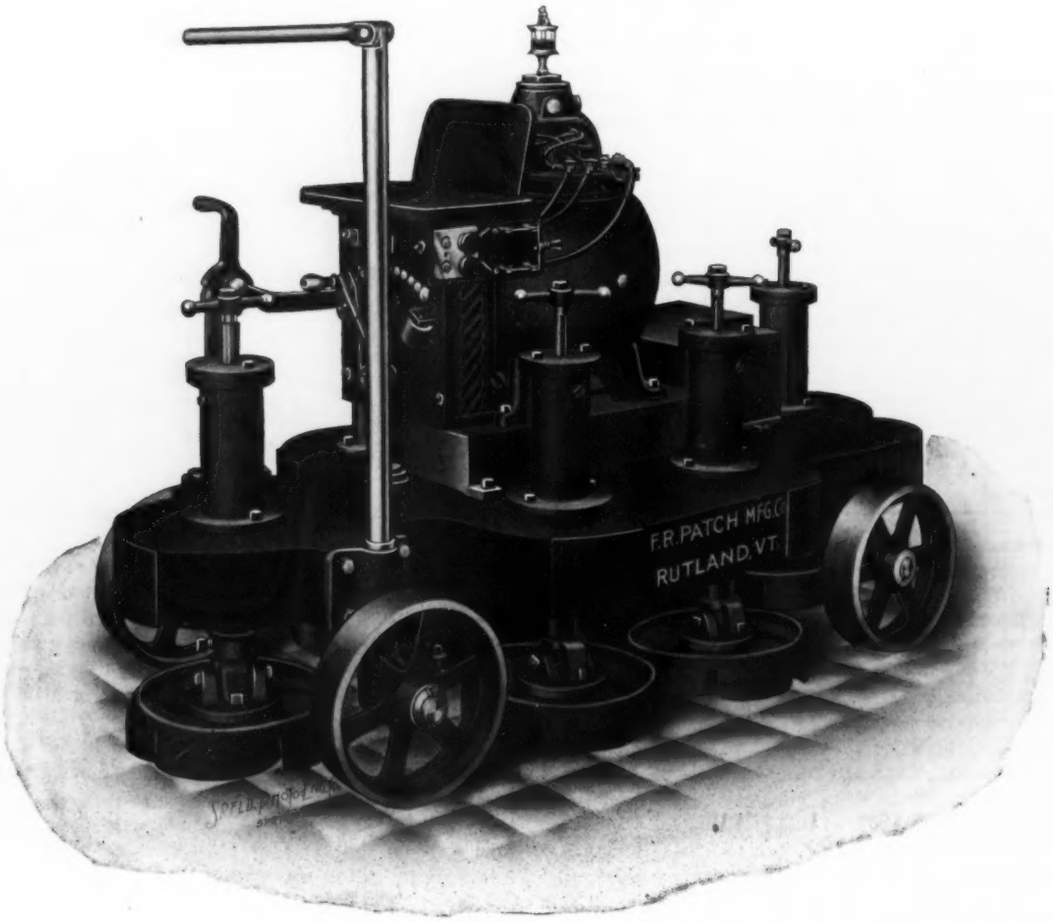
Canadian Tin Plate Imports.—The *Iron and Coal Trades Review* of London says that while the total tin plate exports of Great Britain are still close to 400,000 tons a year, the total of such exports from all other countries including the United States was less than 20,000 tons by the statistics of 1904. Attention is called by the same paper to the fact that the Canadian market for British tin plates has not improved much in late years, though improvement would be expected in view of the enormous output of canned salmon and in other branches of the canning trade. The total British exports of tin plate to Canada in 1904 were 6000 tons less than in the preceding year. While this does not tally exactly with the increased exports of tin plates from the United States to Canada in that year, there was a considerable increase in the latter. The value of Canada's tin plate imports from Great Britain in the fiscal year 1904 was $1,215,700; in the fiscal year 1905 $1,206,906. The imports from the United States were valued at $246,111 in the fiscal year ending in 1904 and $544,601 in 1905, an increase of considerable more than 100 per cent.

As a tribute to the memory of the late Wm. B. Rankine, the chief founder and organizer of the Niagara Falls Power Company, the citizens of Niagara Falls have decided to raise a fund to be known as the Rankine Memorial Scholarship Fund, the income from which is to be used for one or more scholarships to be awarded periodically to students of the Niagara Falls High School who show proficiency in technical studies, to enable them to continue their work in higher institutions of learning.

The Patch Electric Floor Surfacer.

A machine that has a unique function is the electrically driven floor surfacing machine made by the F. R. Patch Mfg. Company, Rutland, Vt., and known as the Motordago. It is another example of mechanical means of doing away with hand labor, the operation in this case being the smoothing and polishing of stone or mosaic floors, which heretofore have been rubbed down by hand with small stones, the process being both slow and laborious.

The motor used is a 7½ horse-power vertical type machine which allows the simplest possible arrangement of gearing. The gears have machine cut teeth and the motor pinion is of raw hide. All of the gearing is inclosed and protected from grit and water. The operator rides on the machine, his seat being located near the front or steering end, easily within reach of the motor controller and the steering and reversing handles. The machine is self propelling in either direction at a rate of about 15 feet per minute.



An Electrically Driven Stone Floor Surfacing Machine Built by the F. R. Patch Mfg. Company, Rutland, Vt.

There are six grinding wheels, each 13 inches in diameter, which rotate at a speed of about 200 revolutions per minute. They are arranged so as to entirely cover a track 33 inches wide. Each is held to its work by an independent adjusting screw, consequently the effectiveness of the grinding in no way depends upon the weight of the wheels. It is possible to raise any or all of the wheels so that they clear the floor if such a condition should be desirable. All of the bearings subject to wear are fitted with removable bushings. The motor can be furnished for any standard voltage and extra armatures for different voltages can be supplied for use in the same motor. The weight of the machine complete is about 2300 pounds.

Recent tests at Indian Head upon the resistance of armor, such as is used in the Tennessee class of vessels, are described in the *Army and Navy Journal*. Six and 8 inch guns were used, the striking velocity of the projectiles being those corresponding to ranges of from 3000 to 5000 yards. The target was built to resemble the side of the Tennessee, with all decks, bulkheads, &c. In each case the damage done by the bursting of shells did not extend beyond the compartment where the explosion occurred. As a final test a 12-inch shell was exploded within an inclosed compartment just above the armored deck, and while the local effect was considerable, the armored deck was not penetrated.

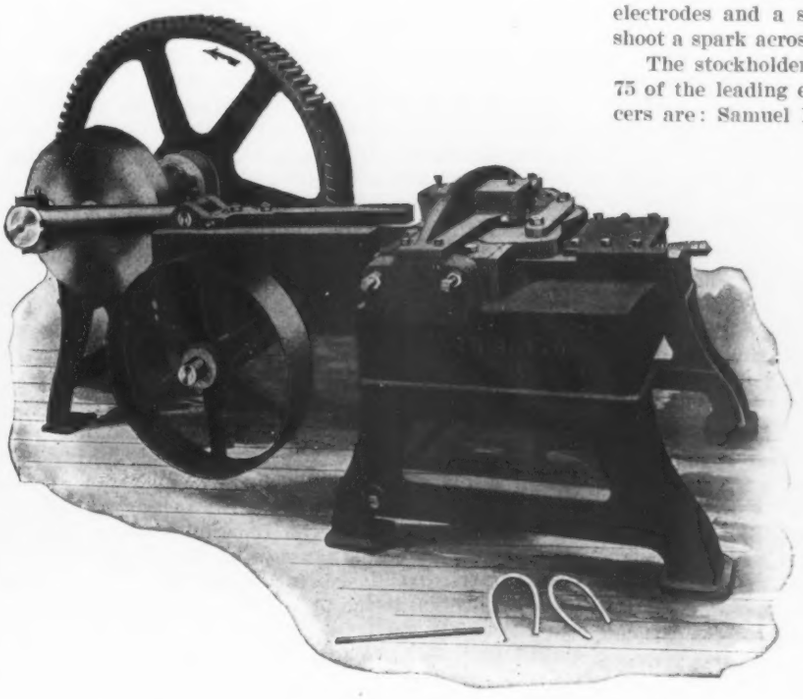
German Steel Producers Invite American Engineers.—At a recent meeting of the Verein Deutscher Eisen und Stahl Industriellen held at Berlin, Germany, Secretary Bueck brought up the proposal to invite the members of the American Institute of Mining Engineers to come to Germany in connection with their visit to Great Britain next year. Some time ago an invitation was extended by the Iron and Steel Institute to the American Institute of Mining Engineers to visit Great Britain at the time of the autumn meeting of the Institute in 1906. The Association of German Iron Founders later made the proposal that the American visitors should be asked to make a brief sojourn in Germany. This proposal was taken up by the German Association of Iron and Steel Producers on Herr Bueck's recommendation and was unanimously agreed to. The German Steel Syndicate has joined in the invitation and a number of associations are expected to co-operate

The effect of vanadium upon steel has been shown by melting a specimen of mild steel, free from phosphorus, in a graphite crucible. The steel originally had a tensile strength of 30 tons per square inch and an elongation of 17 per cent. After melting it became carbonized and showed 61 tons tensile strength and 23 per cent. elongation. The addition of 1 per cent. of vanadium raised the tensile strength to 69 tons and the elongation to 7.3 per cent.

The Bliss Horizontal Horseshoe Bending Press.

The machine herewith illustrated is one specially designed for bending horseshoes and is built by the E. W. Bliss Company, Brooklyn, N. Y. It is capable of bending any size of shoe that may be required, but a separate set of forms must be used for each different size. The rough stock is in the form of straight billets, one of which may be seen on the floor in front of the machine near two samples of the finished product.

To make a shoe a hot billet is placed between the forming parts when the slide is drawn back, and as it moves forward the punch forces the billet into the form, which automatically closes about the punch, giving the shoe the required shape. As the punch recedes the form opens, allowing the punch to be withdrawn with the formed shoe clinging to it. When the punch reaches its extreme backward position it stops over an opening in the bed of the press and the horseshoe falls through this opening. No stripping mechanism is necessary, as the forms may be adjusted to allow the horseshoe to fall by gravity.



Horizontal Horseshoe Bending Press Made by the E. W. Bliss Company, Brooklyn, N. Y.

The press is not provided with a flywheel as there is sufficient momentum in the driving pulley, which is 30 inches in diameter and runs at about 250 revolutions per minute. The ratio of the gearing is 7 2-3 to 1, making the number of strokes about 33 per minute. The length of the stroke is 20 inches. The output of the machine is limited by the dexterity of the operator and the heating facilities. If these are all that they should be it is claimed that it is easily possible to catch every stroke of the press. The machine weighs about 9800 pounds and occupies a floor space of about 10 feet 9 inches by 5 feet 2 inches.

Financiers are greatly interested in the advance of silver. It is now up to 54 cents an ounce, and they are inclined to believe that if the advance continues to any great extent it may disorganize monetary conditions in some parts of the world. At present prices the bullion value of silver is slightly more than the monetary valuation of the coin. A number of circumstances have combined to bring about the present advance. In the first place, there is an unusual demand for silver from Asia, Russia and Japan, while the ordinary demand from most other sources is in excess of the normal. There was also a very large short interest in the London market and the efforts of the bears to cover their requirements has had a direct effect.

The Chicago Electrical Show.

The Electrical Trades Exposition Company has been incorporated by electrical interests in Chicago and has in preparation an electrical show which will be held at the Coliseum, Chicago, from January 15 to 27. The success of the fair has already been assured, as nearly one-half of the available 38,000 square feet in the building has been taken by the leading manufacturers and dealers in electrical appliances and apparatus. The purpose of the exposition is to acquaint the trade and the general public with the numerous ways in which electricity may be applied and the countless appliances which are on the market. In addition to the exhibits there will be many features, such as daily tests of wireless telegraphy and the newer discovery of wireless telephony. The Frank S. Betz Company of Hammond, Ind., will show the biggest static ever made. This firm is now constructing two electrodes and a special coil for this purpose that will shoot a spark across the top of the Coliseum.

The stockholders of the Exposition Company include 75 of the leading electrical men of Chicago, and the officers are: Samuel Insull, president; Edward B. Ellicott, Charles E. Gregory, E. B. Overshiner, vice-presidents; John J. Abbott, treasurer; Stewart Spalding, secretary; Thomas R. Mercein, general manager. Among the firms already assigned space are the following: General Electric Company, Westinhouse Companies, Swedish-American Telephone Company, C. H. Thoradson, Monarch Electric & Wire Company, J. L. Schurman Company, Reynolds-Dull Flasher Company, Haller Machine Company, Sprague Electric Company, J. Lan Electric Company, Fort Wayne Electric Company, Osborne Flexible Battery Company, Federal Electric Company, Peru Electric Mfg. Company, Central Electric Company, H. T. Paiste Company, Universal Electric Storage Battery Company, McFell Electric Company, George W. Conover, Chicago Edison Company, Allis-Chalmers Company, Chicago Telephone Company, Frank S. Betz Company, American Steel & Wire Company, Guarantee Electric Company, Electrical Appliance Company, Roth Bros. & Co., American Electric Company, Vesta Accumulator Company, Crane Electric Company, Chicago Battery Company, Electric Storage Battery Company, Overbaugh & Ayers Mfg. Company, Sam J. Gorman & Co., Miller Anchor Company, Crocker-Wheeler Company, Mark Mfg. Company, H. E. Cobb, and Western Electric Company.

The Brown-Corliss Company Failure.—The Brown-Corliss Company, manufacturer of Corliss engines, Corliss, Wis., was forced by its creditors into the hands of a receiver November 15. The Fidelity Trust Company, Milwaukee, was appointed receiver and will conduct the plant and complete a number of large contracts now on hand, among which are an engine for the Milwaukee Water Works and two engines for the National Tube Company, Pittsburgh. The total assets aggregate $799,500. The total liabilities are placed at $424,628. The company was organized in 1901 by Walter F. Brown, Walter F. Whiting and Julius Wetzleburg. Mr. Whiting is president and W. P. Marr secretary. It is expected that the owners will have an opportunity to reorganize in a few months.

Incandescent gas lamps, it is stated, are to be substituted for electric arc lamps in the street lighting of London.

RAILROAD DEVELOPMENT IN CHINA.

BY JOHN FOORD, SECRETARY OF THE AMERICAN ASIATIC ASSOCIATION, NEW YORK.

Importance of Japan's Victory Over Russia.

It will take some time fully to realize the importance of the fact that Japan's victory over Russia places a definite arrest on the dismemberment of China. The integrity of the Chinese Empire, which Japan has in one very important respect restored, is sufficiently guaranteed by the new and more comprehensive alliance between Great Britain and Japan. When in July, 1903, Japan challenged the continued evasion by Russia of her promise to restore the Manchurian provinces to China the support which either Great Britain or the United States was willing to give to the maintenance of the principle of the open door—that is, the preservation of the Chinese Empire from foreign spoliation—did not contemplate anything more decisive than diplomatic protest. The formal proclamation of a Russian protectorate over Manchuria would not have been regarded as cause of war by either of the great commercial Powers. In our case the popular verdict would have been that there was not enough at stake, the bearing of a divided China on our place as a pacific Power being but imperfectly appreciated. In the case of Great Britain the position of Germany as frankly in favor of the policy of Chinese dismemberment, and that of France as not averse to it, would have been decisive in regard to the expediency of being content with safeguarding what the ambitions of the military Powers might have left of the chosen sphere of British influence in the Valley of the Yangtsze. Whatever else may be uncertain as to the future of a China divided into spheres of European interest and sovereignty, this much must be assumed—the customs barriers of the protecting or governing Power would have been erected without delay around its particular preserve. There would have been no equality of commercial opportunity—no open door.

The War Unique in Its Course and Results.

The statesmen of Japan never had any illusions about the meaning of the Russian occupation of Manchuria. The sequel of the Treaty of Shimoneseki was lesson enough for them, if lesson were needed, that the preservation of the independence of Japan was not compatible with Russian sovereignty in Manchuria. It was tolerably clear that if the Amur could not confine the ambitions of Russia, neither could the Yalu; that if the Manchurian Railway was to prove the entering wedge of Russian diminion in the three eastern provinces of China the declared intention of continuing a branch of it to Seoul would have been promptly carried out, and the menace of the Korean timber concessions would have been followed by the supremacy of Russian influence throughout the isthmus. As that very literally meant the aiming of a dagger at the heart of Japan, and as Russian arrogance was as boundless as Russian ambition, war was inevitable. In its course and its results the war will occupy in history a place absolutely unique, but in no respect does it claim a distinction so exclusively its own as in having secured for other nations ample participation in all the advantages gained by the victors.

Chief among these advantages is, first, the certainty that the energies of the vast Empire of China will be directed along the lines of modern progress, and, second, that the commercial and industrial nations will have free and full opportunity to compete for their share in the work of equipping China with the appliances of what is known as Western civilization. China is a country where vast and undeveloped mineral wealth exists side by side with the most primitive and costly methods of transportation, where railroad construction is still in its infancy and where, be the population 400,000,000 or 300,000,000 or somewhere between the two, the traffic has been provided in advance of the means of carrying it out. The cost of land transport in China averages over 14 cents per ton per mile. The cost of carrying coal, by means of carts, wheelbarrows and donkeys, from the mines of Shantung to a point 7 miles distant is from 39 to 50 cents per ton per mile. Anthracite, which costs in Shansi 39 cents per ton at the pit mouth, costs after being carried 80 miles on the backs of asses $17 per ton, an additional 20 cents per ton per mile to the original cost.

The First Chinese Railroad Suggestion.

When Sir Thomas Jackson, the then chief manager of the Hongkong and Shanghai Bank, was entertained in New York five years ago he laid great emphasis on the fact that the first great need of China was railroads and that of all countries on the face of the earth the one showing the best field for railroad enterprise was China. At that time the entire system of Chinese railroads covered only 340 miles, and even that represented all that had been accomplished since the first rail of the line between Shanghai and Woosung was laid a quarter of a century before. Curiously enough, the earliest recorded intimation that the idea of railroad construction had entered the Chinese mind is to be found in the closing article of the commercial treaty with the United States, signed on our side, in 1868, by William H. Seward as Secretary of State and Anson Burlingame as Minister to China. The article reads as follows:

"The United States, always disclaiming and discouraging all practices of unnecessary dictation and intervention by one nation in the affairs or domestic administration of another, do hereby freely disclaim and disavow any intention or right to intervene in the domestic administration of China in regard to the construction of railroads, telegraphs or other material internal improvements. On the other hand, His Majesty the Emperor of China reserves to himself the right to decide the time and manner and circumstances of introducing such improvements within his dominions. With this mutual understanding it is agreed by the contracting parties that if at any time hereafter His Imperial Majesty shall determine to construct or cause to be constructed works of the character mentioned within the empire and shall make application to the United States or any other Western Power for facilities to carry out that policy the United States will in that case designate and authorize suitable engineers to be employed by the Chinese Government and will recommend to other nations an equal compliance with such application, the Chinese Government in that case protecting such engineers in their persons and property and paying them a reasonable compensation for their services."

A Discouraging Beginning.

That the idea did not strike very deep is evidenced by the fact that the Shanghai-Woosung Railroad of 14 miles, finished in 1876, had been opened for little more than a year before it was bought up by the local authorities and summarily removed. The next serious attempt at railroad construction in China was made in 1881, under the direction of G. E. Kinder, an English engineer, who had been placed in charge of some coal mines near Tong-Shan. Mr. Kinder found in existence a tramway over which coal was being transported on cars pushed by Chinese workmen, and, gradually extending it north and south, placed a steam engine upon it for use in the work of the mines. The Chinese finding that the use of the engines did not bring the disaster they had anticipated waived their objections to the steam road, which shortly developed into one for general traffic and was extended little by little until it reached Tientsin in the south and Shanhaikwan on the confines of the Great Wall in the north. The road proved successful and popular and was further extended from Tientsin to within a short distance of Peking, with which it was connected by an electric road. Thus was created in the face of manifold obstacles and in spite of endless discouragement the first installment of the railroad system known as the Imperial Chinese Railways. Under the same

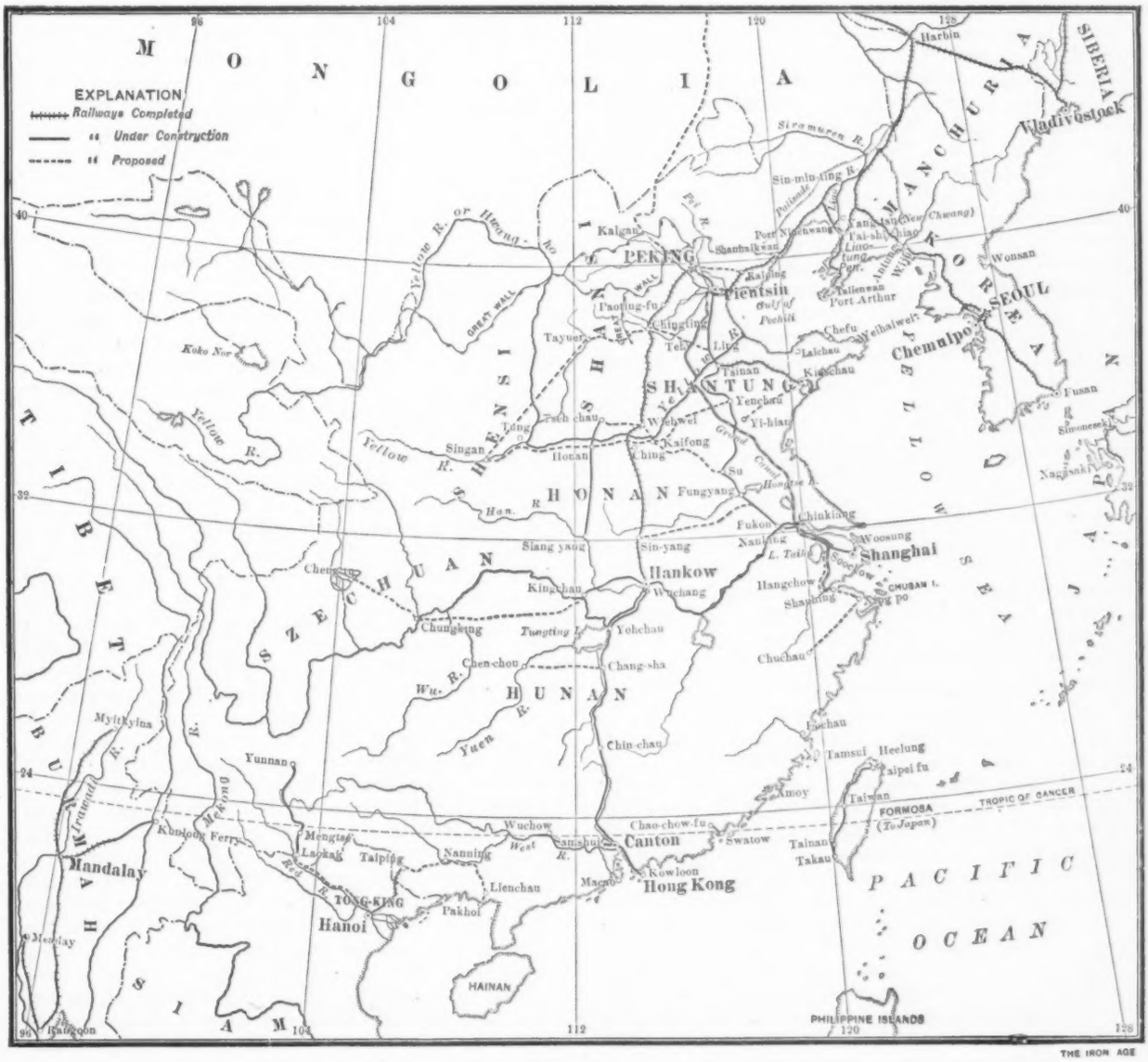
auspices the first southern link of the system was constructed to Paoting-fu, distant 80 miles from Peking—a line afterward merged in the Belgian concession for the road from Peking to Hankow.

The Manchurian Russian Concession.

This latter enterprise marks the beginning of the initial struggle for railroad concessions in China, which has hitherto been pursued somewhat more on political that commercial lines. In 1898, to quote the language of an imperial edict: "Railroads and mines are nowadays the most important enterprises in this empire." Two years before an agreement had been concluded between the Chinese Government and the Russo-Chinese Bank for the construction and management of the Chinese Eastern Railroad—that is to say, the line traversing the two northern provinces of Manchuria and connecting Stretensk by way of Harbin, with Vladivostock. This was the first step toward what has been called Russia's "pacific conquest" of China. But it was merely preparatory to a more significant advance, made under the terms of the convention between Russia and China in March, 1898, by which the Chinese Government agreed that the principle of the permission given in 1896 to the Manchurian Railroad Company for the construction of a railroad should be extended to the construction of a branch line from a certain station (Harbin) on the aforesaid main line to Talienwan, or, if necessity required, that it be extended to the construction of a branch line to a convenient point on the coast of the Liaotung Peninsula, between Yang-tsu (New Chwang) and the Yalu River.

Chinese Officials Distrusted the Russians.

Chinese official opinion was by no means unanimous in regard to the wisdom of these concessions. The great Yangtse viceroys, particularly the late Liu Kun-yi, the Viceroy at Nanking, perceived the danger of the railroad conquest of China by a great military power and did all they could to keep out of China, south of the Great Wall, the kind of enterprise which the pro-Russian clique at Peking had rendered possible in Manchuria. Accordingly, when it became a question of the extension of the Imperial Chinese Railway from Paoting-fu to the Yangtse, for which Chinese capital was not forthcoming, the representatives of the American China Development Company, who visited China in the winter of 1896-1897, were invited to undertake its construction. But, in the words of one of them: "They soon found that the concession thus offered was of no commercial avail." A Belgian syndicate took up the negotiations where the Americans laid them down, and was able to disarm the Chinese suspicion of ulterior territorial ambitions by the argument that Belgium was a weak and inoffensive power. It was discovered only after a contract had been finally signed that behind the Belgians were the French capitalists who had contributed to the organization of the Russo-Chinese Bank and the Russian Government, which had brought that institution into being to do its financial work in the Far East. Even then Lord Salisbury was trustful enough to declare in the British House of Lords on August 1, 1898: "As far as our information goes, derived both from China and Belgium, we have no doubt whatever that it is a



Railroad Development in China.

complete mistake to imagine that this Peking-Hankow Railway is in the hands of Russia; it is in the hands of a number of Belgian syndicates and firms who obtained the first promise of a concession from 15 to 18 months ago."

The American China Development Company.

Chang Chi-tung, the Viceroy at Wuchang, and Liu Kun-yi knew better, however, and they threw all their influence on the side of the American China Development Company when the representatives of that corporation showed a disposition to contract for the construction of the line from Wuchang, on the south bank of the Yangtse, opposite Hankow, to Canton. The fact that Franco-Belgian diplomacy, supported by Sheng Ta-jen, the Director-General of Chinese Railways, and the pro-Russian coterie at Peking, exhausted every effort to block the American concession merely afforded a fresh demonstration of the wisdom of placing this work out of the control of the great military Powers or the Belgian middlemen. An agreement subsequently modified and expanded was duly executed in Washington on April 14, 1898, by Wu Ting-fang, the Chinese Minister, and the agent of the Development Company. The legal adviser of the company said no more than the truth when he characterized it about that time as "a corporation which is promoted by a syndicate of prominent American capitalists whose business character, experience and financial standing are such as to reasonably insure the carrying out of whatever project they may finally undertake." The story of why the corporation failed to carry out this particular project is both curious and instructive, but need not be retold here. It is sufficient to say that what one Belgian syndicate failed to accomplish by diplomatic obstruction another did by buying up shares enough of the company to control its management, only to find, however, that the contract with the Chinese Government having been vitiated by a change of the nationality of its holders, they were in some danger of being left with an empty shell. The subsequent resale by the Belgians of enough stock to American holders to restore the original character of the corporation, and the transfer, for a liberal consideration, into Chinese hands of all the property and franchises of the Hankow-Canton Railroad, including the short branch line built from Canton to Samshui, is matter of very recent history.

British Concessions.

So ends for the present, but only for the present it may be hoped, the history of American railroad construction in China. Some consolation for this experience of failure may be found in the fact that our British cousins have not exhibited much more energy in the carrying out of the railroad concessions which, with a great flourish of trumpets in Parliament and elsewhere, were announced as having come to them in 1898. These included a railroad from Shanghai to Soochow and Nanking (200 miles); another from Shanghai to Hangchow, with possible extension to Ningpo (200 miles); from Pukou, opposite Nanking on the Yangtse, to Sin-yang in Honan, a station on the Peking-Hankow Railroad (270 miles), and a short line from Kowloon, opposite Hongkong, to Canton. Up to the present time the only one of these concessions on which work is fairly in progress is the Shanghai-Nanking Line, and the character of the difficulties experienced in prosecuting its construction may help to explain the slow progress of active railroad enterprise in China.

The British Shanghai-Nanking Line.

According to the very well informed Shanghai correspondent of the London *Times* the beginning of work on this concession was first delayed by the reluctance of the London money market to invest capital in China after the Boxer outbreak, but the more serious obstacles encountered were due to the political intrigues which have influenced the Chinese Government in general and Sheng Ta-jen in particular to oppose British enterprise and to support the Franco-Belgian group of capitalists, supported by Russian diplomacy. Though the concession was originally granted in May, 1898, the final contract was signed as late as July, 1903. Between that date and the actual beginning of work there was a great deal of discussion between Sheng and the concessionaires in regard to points of detail, financial and administrative, and it was only when at the instance of the British Government an intimation was conveyed to the Director-General from the Wai-wu-pu (Chinese Foreign Office) that further obstruction would entail unpleasant results that the business began to advance with some degree of rapidity. Progress in China, however, is a relative term, and what passes for rapidity there would be regarded here as undeniably slow. The working theory on which this and other Chinese railway concessions have been granted is that the concessionaires undertake to build the road for the Government out of the proceeds of bonds issued on the security of the property, but also bearing the indorsement of the Government or its representatives. The concessionaires are left to manage the road under an agreement as to the division of the profits, and when enough of these have accrued to make it possible to cancel the bonded indebtedness the Government takes formal possession of the property, which it has only temporarily alienated. Director-General Sheng and his Chinese associates on the Board of Construction are supposed to earn their salaries by seeing that the work under their supervision is conducted with economy and dispatch. Their ways of doing this are characteristically Chinese.

Difficulties Encountered by the British Builders.

The road between Shanghai and Nanking traverses a flat country intersected by many creeks and covered for the greater part of the distance with innumerable graves. By the terms of the contract Sheng receives $1,250,000, in return for which he is bound to acquire all necessary land and to obtain the removal of graves within the limits required by the railway. At the beginning of last March, 18 months after the arrival of the engineering staff, only 38 miles of the total length had been acquired and this in isolated sections. He promised, however, to give the company full possession of all the land as far as Soochow before April and thence to Wusieh before June, but up to a recent date continuous pressure had not succeeded in securing fulfillment of these promises. Meanwhile it is interesting to observe that as soon as the survey of any section is completed and the line definitely located a Chinese syndicate, of which Sheng's son is the reputed head, purchases the land wherever possible from the agricultural owners and holds it against the railway company, claiming a large advance on the market value. While these operations primarily concern the Chinese Government, they do delay the work of construction and by increasing the ultimate cost of the railway tend to diminish the chances of future profit. At the Shanghai terminus in particular the necessary land has been so effectually cornered and is held at such high prices that the position of the station may yet have to be changed. Even the removal of graves is made the subject of combinations which, under the title of benevolent societies, levy a handsome profit on the railway company for their pious devotion to the remains of the numerous departed Chinese who have left no descendants to practice for them the rites of filial piety. When finally completed, as it is likely to be in a year and a half, the road cannot fail, however costly may be its construction, to be a highly profitable one, and its demonstrated success will probably give new stimulus to the investment of British capital in Chinese railroad construction.

The Peking Syndicate's Plans.

Outside of the system of railroads converging on Shanghai and keeping closely in touch with the coast and the Yangtse British capital is also largely interested in the roads to be constructed by the so-called Peking Syndicate, a corporation formed to develop the enormous coal and iron deposits in the Province of Shansi. A partial invasion of this field was made when the Russo-Chinese Bank obtained a concession to construct a railroad about 130 miles long from Cheng-ting, a station on the Peking-Hankow Railroad, to Taiyuen, in the heart of the mineral country. The Peking (Anglo-Italian) Syndicate obtained the right to build a line from Taiyuen, in Shansi, at the northern boundary of its vast mine field, to

Singan, the capital of Shensi, from which a railroad is planned parallel with the course of the Yellow River and connecting with Kaifong, the terminus of a branch line of the Peking-Hankow Railway. The Peking Syndicate is moreover pledged to the construction of a railroad from Tseh-chau, at the southern boundary of its mine field, to Siang-yang, 250 miles distant, on the Han River, a navigable affluent of the Yangtse. It would also appear that the same group of capitalists has the right to build another road from Tseh-chau, by way of Kaifong, to Pukou, on the north bank of the Yangtse, opposite Nanking.

A German Concession.

In their special sphere of interest, the Province of Shantung, the Germans have acquired the concession for a railroad already built from Kiaochau to Tsinan and for another from Kiaochau to Yi-hian. It was originally proposed to make a railroad triangle out of the German system by connecting Tsinan with Yi-hian, but the scheme has been modified by the execution of the Anglo-German enterprise of a line from Tientsin to the Yangtse, opposite Chinkiang, running for the greater part of its 600 miles parallel with the Grand Canal. This latter concession was originally in American hands, but its execution was negatived by the German Minister at Peking on the ground that under the treaty of 1898 respecting the lease of Kiaochau there was given to Germany exclusive rights of railroad construction in the Province of Shantung.

French Concessions.

There remain the French concessions in the extreme south, destined to connect Hanoi, the capital of Tongking, with the Chinese treaty ports of Mengtse and Yunnan on one side and Pakhoi, Nanking and Wuchow on the West River, above Canton, on the other. At the head of the shallow and uncertain navigation of the Red River, which, passing through Hanoi, furnishes a waterway of dubious value across Tongking to the sea, is Laokai, and the French have taken this as a starting point for a railway to Yunnan, a distance of 300 miles. Four years is the limit fixed on the term of construction of this road, which is already well under way. The British have long had the ambition to connect their Indian railroad system by way of Burmah with a Chinese system terminating at Kunlong Ferry. The road from Mandalay to this latter point is nearly, if not altogether, finished, but (commercially) insuperable obstacles bar the way to Yunnan, which the French have already tapped from the south. Until the British Government is prepared to back the rather costly enterprise of constructing a series of Mont Cenis tunnels between Kunlong Ferry and Yunnan the western approach to the Valley of the Yangtse would seem to be barred. This, however, is part of a somewhat larger subject, to which another article may profitably be devoted.

Chinese Planning Railroads Themselves.

This one would hardly be complete without reference to the new found interest which the Chinese themselves are taking in railroad construction. We have already noted the resumption by the Chinese Government of the Hankow-Canton concession, and its intention has been announced to complete and manage that railroad under its own immediate auspices. A company has been formed with Chinese capital for building a short railroad line from Swatow, a port on the southeast coast between Amoy and Hong Kong, to Chao-chou-fu and work was begun on this enterprise in September, 1904. Two more ambitious native Chinese railroad enterprises are: (1) A line from Cheng-tu, in the heart of the great and populous Province of Szechuan, to Hankow and (2) a line from Chen-chou, in Hunan, to Chang-sha, in the same Province, to connect with the trunk line from Hankow to Canton. The fact that the Yangtse gorges form an insurmountable obstacle to ordinary commercial steam navigation makes the necessity urgent for the construction of a railroad right up the Yangtse Valley, and the first mentioned of these two schemes is an attempt to provide the required steel highway.

Germany's Alternative Reciprocity Proposition.

WASHINGTON, D. C., November 21, 1905.—The German Government, through United States Ambassador Tower at Berlin, has presented to the State Department an alternative reciprocity proposition which it is believed will obviate the imposition on American products of the maximum rates of the new German tariff, which go into effect next March. Notwithstanding the prompt attention which Secretary Root has given to the formal request of the German Government for the negotiation of a reciprocity treaty, it is recognized that it is not practicable to complete the necessary negotiations and ratify such a convention in the short time now available, even if assurances could be had that the Senate would take favorable action. Under these circumstances the German Government has deemed it advisable to suggest to the United States a species of *modus vivendi* to go into force next March and to remain in effect until Congress has had a "reasonable time" in which to determine whether it will approve or disapprove a comprehensive reciprocity treaty. The proposed arrangement embraces the extension of the minor reciprocity treaty of 1900 with certain modifications, and if the proposition is accepted by the State Department it can be put into effect without action on the part of Congress.

Under the treaty of 1900 the United States grants reduced rates to German crude tartar, brandies, still wines and works of art. The concessions made by the German Government include the entire minimum schedules of the existing tariff and are set out as follows:

11. Reciprocally the Imperial German Government guarantees to the products of the United States on their entry into Germany the tariff rates which have been conceded by the commercial treaties concluded during the years 1891-1894 between Germany, on the one part, and Belgium, Italy, Austria-Hungary, Roumania, Russia, Switzerland and Servia, on the other part.

It is of course obvious that the United States secures under this treaty vastly more important concessions than it grants, and in view of the large increases made in the new German tariff the German Government has announced its unwillingness to continue this treaty in force without modification. It is now proposed as a *modus vivendi*, however, that this convention shall be extended without change in the concessions made by the United States but with restrictions as to the articles on which Germany will levy the minimum rates of her new tariff. While it is believed that the State Department would agree to the proposed *modus vivendi* as the best way out of an awkward situation, the acceptability of the proposition must finally depend upon the extent to which Germany insists upon modifying the existing treaty. This is a matter of vital importance to the manufacturers and exporters of the United States, and representatives of the iron and steel trade will no doubt take a lively interest in the readjustment that will be made if the projected *modus* is agreed to. It is intimated here that while Germany may withdraw the minimum rates of her tariff on many articles, such withdrawals will not include our principal export lines, and that, broadly speaking, the *modus vivendi* will be nearly equivalent to the unrestricted extension of the treaty of 1900.

The ablest international lawyers here unite in the opinion that if the treaty of 1900 should be changed only with respect to the concessions made by Germany on American products it will be perfectly competent for the State Department to continue the arrangement in force without submitting it to Congress. W. L. C.

We have received from the Kanawha Nail & Iron Company, Charleston, W. Va., a communication setting forth the great advantages of the city for the location of manufacturing establishments. That part of West Virginia abounds in vast areas of fine timber and practically inexhaustible deposits of steam and coking coals. Besides these are great natural resources in fire clay, building stone, petroleum and natural gas. The locality is well served with railroad facilities and, further, enjoys ample water furnished by several rivers which come together at that point. The company states that the citizens are liberal in furnishing sites for the location of manufacturing industries.

THE NATIONAL FOUNDERS' ASSOCIATION.

Important Questions Considered by the Ninth Annual Convention.

First in importance of the matters considered by the National Founders' Association at its ninth annual convention at the Hotel Astor, New York, November 15 and 16, was the proposal for closer relations with the National Metal Trades Association. The recommendation of the joint committee of the two organizations is still to be submitted to a letter ballot in both memberships. However, the ratification of the committee's report by the convention last week and like action by the Administrative Council of the National Metal Trades Association at Cincinnati a few weeks ago would indicate that the proposal for a joint Administrative Council and for common headquarters without any attempt at organic union will be adopted. Sentiment in both associations is strongly in favor of such a basis of co-operation, though details are yet to be considered and it may be some months before the plan now under discussion can be worked out.

The fact that the convention came at the end of the first year's experience under the open shop régime initiated at the Cincinnati convention of 1904 lent peculiar interest to the reports of the association's officers for that period. These indicated that a number of foundries had been transferred from the closed shop to the open shop list in the year and that further progress in this direction is to be expected. A noteworthy feature of the convention was the enthusiastic support given to the policy pursued by the association's officers and the confidence that the action taken at Cincinnati would result in further strengthening of the organization. Important items in the proceedings were the decision to support thirty scholarships in the foundry trade school of the Winona Technical Institute at Indianapolis, the decision to increase the number of foundry apprentices, the discussions on molding machines and on foundry foremen's clubs, and the election of Commissioner O. P. Briggs as president for the coming year.

WEDNESDAY MORNING.

The registration, which was about 150 at the opening of the convention on Wednesday morning, was increased materially throughout Wednesday and Thursday and finally reached a total of 239 members and 45 guests, or a larger number than at any previous convention. It was noteworthy that the men who were prominent at the inception of the association were still on hand and active in the work of the convention, while new men who had shown special interest in the movement had also come into prominence and were influential in shaping legislation.

The President's Report.

President Antonio C. Pessano in his report gave a comprehensive review of the work of the year, with suggestive comment on the new phases that had developed and the attitude which it seemed wise for the association to take in view of these changes. We give liberal extracts from the report below:

In considering the many problems confronting an association with aims and purposes such as those of the National Founders' Association it is essential that ever changing business conditions should be carefully watched. Beginning with the season of 1903 we were compelled to deal with a falling market and consequent lack of employment for those classes of artisans with whom we deal. With the commencement of the season of 1904 a noticeable improvement was at hand and workmen, whether union or nonunion, found more ready employment. But I believe that at no time in the history of the foundry industry has the condition of activity in business and comparative quiet in the circles of our employees gone hand in hand to such an extent as during 1905. In making this statement, however, I do not wish to be understood as advocating any less attention and watchfulness than heretofore. It is the duty of each individual member to do what he can to strengthen the present situation, that this period of comparative prosperity and peace may be continued.

Higher Cost of Materials.

I have no doubt many of our members who have been operating jobbing and machinery foundries in the past few years have had brought most forcibly to their attention the altered business conditions as affecting the prices paid by manufacturers for raw material and labor and the prices received for the finished product. Basing my opinion upon those cases with which I have come in contact, I venture the statement that the profits of the purely jobbing and machinery foundry have not been what they were in previous years and not what they should be. This has been largely due to severe competition among these proprietors, emphasized to some extent by the fact that new firms have entered the market without previous experience in the handling of this class of goods, thereby giving rise to erroneous quotations in the making of estimates. A better understanding among the proprietors of jobbing and machinery foundries as to the value of castings of different grades would no doubt tend to ameliorate this condition and prevent much of the unintelligent bidding upon work which is now so manifest. It is much preferable to contract for less work at a profit than to fill one's plant to its capacity at a loss. While the fundamental law of our association does not permit us to take a hand in a matter such as this, I mention it because of the natural interest of our membership and for the purpose of advancing the suggestion that our friends in the jobbing and machinery line give it careful consideration.

Working Out of the New Policy.

At the 1904 convention President Frank in his address brought out the condition which has given rise to the adoption of a definite and well outlined policy for the association. Upon the statement and recommendation of the chairman of the committee which had endeavored to obtain a uniform agreement with the union, the association after well merited deliberation directed the abrogation of what was known as the New York agreement, made with the molders' union in 1899. The association had been conducting its affairs along the lines prescribed by this agreement for five years, and naturally its abrogation thrust upon the officers the duty of devising new ways and means for the protection of our members. This gauntlet the new Administrative Council and your officers were prompt to take up, and we believe that these interests have been safely guarded during the past year and with greater satisfaction to the general membership than was the case when the above mentioned agreement was in effect.

Many of the older and more conservative members of the association, while indorsing the principles of the new policy and acknowledging the absolute necessity of a change, were at the same time slightly skeptical of the wisdom of such a move; but it is with considerable elation I am able to say to-day that these members are now giving their substantial support to the propagation of these new principles.

Better Education of Workmen.

First among our purposes and objects in inaugurating this new policy was the education of those men who wish to follow the trade of molding as free men, unhampered by the tactics of the union. We have emphasized the many advantages which would accrue to them were they to learn their trade in a manner fitting them to command the highest rate of compensation, measured entirely by their skill and ability to produce work. We have attempted most aggressively to place before these men the fallacy of permitting their progress to be barred by the rates of compensation and other liberties which unionism endeavors to secure for the inferior workman. Quite naturally the higher education of our employees would minimize the number of labor difficulties constantly recurring and place these men in a much better position to cope with the unscrupulous agitator when magnifying immaterial issues.

If the leaders of the labor unions of to-day would realize the benefits to be derived from the better education of the workmen, these men would command greater respect and admiration. As these unions do not lean in this direction, we as members of an employers' organization most prominently in the public eye have indeed a severe task before us. The unions have taken the wrong tack, and in doing so caused no end of trouble and inconvenience, not to mention an enormous loss in dollars and cents to the manufacturer as well as the workman. In the past the manufacturer would seem to have been entirely too unmindful of the welfare of himself and employee, but I believe he is now awake to the serious situation in which he finds himself and realizes that his own salvation is most closely linked with that of the employee.

Protection of Workmen Against Violence.

The second of our objective points under the new policy were taught by our experience in combating strikes. A strike has carried with it in the past the employment by the unions and their sympathizers of professional sluggers, murderers and intimidators to such an extent that these terms have now come to be accepted as synonymous. With a membership covering a wide territory the work of our association has brought its officers in contact with the municipal officers of many cities. The conduct of affairs in these cities in connection with the detection, prevention and punishment of crime has been as varied as the number of cities involved. We have found in some of these municipalities police authorities as well as the courts very closely allied with the unions; so much so, in fact, as to render it practically impossible to secure convictions for most manifest violations of the law. I am pleased to record here, however, that a most wholesome change in public sentiment is now sweeping over the land. With its continuance we may truly hope for the protection of those men who wish to work in our plants without first securing permission from some organization in which we, as employers, have no interest.

The employers' association of to-day occupies a unique position in that its manifest duty is the protection of the interests both of the employer, who gives it support, and also of the employee. When considering the irreconcilable position assumed by the labor leaders and the rules and regulations they are attempting to foist upon us we must not neglect the duty of keeping in the right track the employer who may possibly be inclined to overstep the bounds of reason in refusing to listen to or adjust matters presented by the employee for his consideration. In other words, the "big stick" of the National Founders' Association should be intended alike for the unscrupulous agitator and the unprincipled employer. The employer in looking for a good, square deal for himself must also see that the employee is given the same treatment.

An Association Working Force.

Our third objective working point has been the establishment of a thoroughly competent force of skilled workmen in charge of a working foundry superintendent upon whom our members might depend in case of strikes. We have attempted in the organization of this force to secure the services of men who are competent not only to get a foundry into working order but to take charge of other men who might be employed and instruct them in the art of molding. Many of our members during the past year have had reason to appreciate the services rendered by this branch of the association staff. The plan is one which has never been tried by any other organization, and the National Founders' Association is consequently a pioneer in the field. Of the success of this method of retaining the services of faithful men there can now be no doubt. As time goes on certain details will be perfected, and the time is not far distant when we will have at our command a sufficient force to man the largest foundry within the membership of the association upon 24 hours' notice.

Another objective point has been the establishment in important sections of the country of convenient headquarters, with a representative of the association in charge who might be called upon by any of our members in case of difficulty. Since June of this year we have had such an office in Philadelphia. The representative in charge of that office has been continually on the alert, caring for the interests of members in territory contiguous to Philadelphia. He has been called upon by members in the New England States, Pennsylvania and New York at frequent intervals. His proximity to these members has enabled him to reach their plants promptly and thereby render valuable assistance. I unhesitatingly recommend to the incoming officers and Administrative Council the establishment of other branch offices in such cities as may be determined upon.

Co-operation with Kindred Associations.

At the convention of the National Metal Trades Association held in Chicago last March a resolution was introduced having for its purpose a plan of closer co-operation with our association. In accordance with this resolution the president of the National Metal Trades Association appointed a committee to meet a like committee from our association to consider the subject. After laying the matter before our Administrative Council and receiving the approval of that body I appointed a committee, with W. H. Pfahler as chairman and Isaac W. Frank and John L. Ketcham as his colleagues, to meet the committee from the Metal Trades Association.

This committee held its last meeting at Cincinnati on October 17 and recommended to the Administrative Council of each association a plan which is believed most feasible. The recommendations of this committee have been laid before the membership through the medium of a circular issued in October, and this will come before you for final action at the proper stage of these deliberations.

Education of Apprentices.

One of the most serious problems which is before the foundrymen of to-day for solution is that of the proper education of a sufficient supply of competent molders. Not a day passes but that some one of us has reason to appreciate this. A paper by John L. Ketcham of Indianapolis, treating most thoroughly of this question, was read at our last convention and at that time referred to the incoming Administrative Council for attention. Under instructions of the council I appointed a Committee of Investigation, consisting of Messrs Pfahler, Gibby and Oliphant. Acting for the committee, Mr. Pfahler visited the Winona Technical Institute at Indianapolis and made a report to the Administrative Council at its meeting on August 8, which report with its recommendations was placed before our membership in the August number of the *Review*. This subject will also come before the convention for action.

New Members.

In endeavoring to foresee the probable effect of the change in policy promulgated by the last convention there were a few among us who were fearful lest this step might be the cause of a serious diminution in the membership of the association. It affords me pleasure to report at this time that the effect of this change in policy has been quite the contrary. Some changes have taken place in the personnel of the membership, as might naturally be expected to be the case in an organization representing 500 foundry plants. I anticipate this condition of affairs will hardly be received with satisfaction by the officials of the Molders' Union who subsequent to the convention of 1904 were most diligent in prophesying the wholesale desertion of our members because of the abrogation of the New York agreement. Not a single member has been lost upon this account, but 78 new members have been added to the list, representing a capitalization of approximately $8,000,000.

Financial Condition.

The report of the treasurer will show you that the funds of the association are in a most healthy state. All obligations have been promptly met, there is no outstanding liability with the exception of a few current accounts of a minor nature, and we have a good balance on hand. We have been able to accomplish this notwithstanding the expenditure of considerable sums in the prosecution of criminals in the city of Cincinnati and the enlargement of our field force and secret service department. This has also been accompanied by unquestioned victory in each strike undertaken, with the establishment of 14 open shops. This work, however, may be considered as but only commenced, as we have yet a large amount of work ahead of us that the present position of the association may be maintained and its permanency insured for the future.

Foremen's Associations.

I have had brought before me most emphatically in our work of the past year the unquestioned value of associations composed of foundry foremen. In nearly every strike where the association has been called upon to assist its members the foreman has played an important part. I believe you will therefore recognize at a glance the importance of the proper training of this branch of our industry. The experience of your officers and field force has clearly demonstrated that the foremen of our shops are in a large measure responsible for the success of the shop, both in its productive capacity and its peaceful and harmonious conduct. The associating together of the foundry foremen of any city will result in securing these essentials.

My recommendation is that the incoming Administrative Council be instructed to use every possible effort to establish in each city where the association has any membership strong foremen's clubs or associations, organized upon the plan of that which is now accomplishing so much in the interest of the foundrymen of Erie, Pa. I would further recommend to our members who have connected with their plants other departments, such as pattern shops, machine shops, boiler shops, the pursuit of this same plan, that each branch of the trade may be properly taken care of. A ready and efficient adjunct in the perfection of these clubs or foremen's societies should be found in the local employers' associations of each city.

Pacific Coast Membership.

Information of the success with which our association has been meeting of late has been carried to the foundrymen of the Pacific Coast, and we are now assured that these firms would be pleased to affiliate with us, but owing to the distance your officers have not thought it wise to press the subject for the present. I would, however, recommend to the incoming Administrative Council, in view of many letters received from our fellow manufacturers of the Far West, that a representative be sent to the Pacific Coast with the object of investigating the conditions in that territory and learning exactly what might be expected in the way of new members should it subsequently be decided to admit them.

A preliminary investigation discloses the fact that there are 54 firms in 12 cities on the Pacific Coast, with a probable financial strength aggregating from $10.000,000 to $13,000,000, which might be admitted to our organization.

Unionism and High Grade Workmen.

The efforts of the union agitator to retain the high grade workman in the ranks of the unions have lately had some severe setbacks. The consistent educational work carried on for the benefit of these men is beginning to have its effect. Naturally the most skilled element of artisans is not primarily inclined to affiliate with unions but find it necessary at times because of the physical and other force employed by the lower element of unionism to ally themselves for the time being with an organization of that nature.

For this reason I beg to impress upon our membership in the strongest possible terms the obligations they are under to encourage that portion of their employees which is of higher skill, and consequently entitled to greater remuneration, by affording to these men every possible consideration and protection. By this means the employer quite naturally will gather about him a force which is not dependent upon the union for its support. There is a growing and well defined tendency at the present time on the part of the better grade of workmen to make their own terms with the employer rather than to leave these terms to be made by a third individual, who in only exceptional instances has any knowledge of the equities of the case.

Special Service.

The work of our association may be likened in some respects to that of a business enterprise, and especially is this the case in the evolution which takes place in the perfection of its accomplishments. The National Founders' Association has not as yet reached what may be known as maturity. The process of transition, however, has disclosed to the management of the association many of the ramifications of the secret work of unions. While to some extent a knowledge of this work was had prior to the adoption of our altered policy, our laws at that time did not permit us to take aggressive measures to seal the doom of this lawlessness. In prior years it was the idea that the conciliation resultant from numerous conferences with labor unions was the proper policy to pursue, and in following this out it was not considered the part of wisdom to make use of drastic action looking toward even the arrest of officials connected with these unions.

The new policy laid down at the last convention, however, has to a great extent exploded this theory. Having in our experience in years past gained a thorough knowledge of the inward workings of the molders' union it early became apparent to our management that in order to regain the control of the shops of our members it was necessary to conduct the affairs of the association absolutely on business lines. We have deemed it essential that the association conduct its own secret service, that our members who were confronted with strikes might be protected from the ravages of the slugger, the murderer and the cut throat. And in protecting the members we have not lost sight of that measure of protection which should be accorded the worthy workman who sought employment in these struck plants.

In thus aiding the municipal authorities in the detection, punishment or prevention of crime your association has become a public benefactor and its work in this respect should go down in history as most commendable. As the knowledge of the protection guaranteed to workmen who accept employment under the auspices of the National Founders' Association gains ground it will be an encouragement to the thousands of men who are seeking to rid themselves of the obnoxious ban of unionism.

General Approval of Membership.

Our members during the past year have been most interested in the work. They have also taken a pronounced interest in securing the co-operation of neighboring foundrymen. As each member is in all probability acquainted with some one foundryman not now a member of the association, I look forward to a most beneficial result from this activity on the part of our present members in an effort to secure new ones. The many new members added during the past year give evidence of the practical work performed by the membership at large.

The Commissioner's Work.

For the untiring and unremitting zeal of the commissioner the association is greatly indebted. Notwithstanding serious illness in his family, which made it impossible for him to give his entire time to the work, and although absent from the office part of the time, his mind has always been with us, and I have had more than one occasion to appreciate this when inadvertently discovering some important work in which he has been engaged. He has practically directed all of the actual field work of the association staff, and at no time did any of it lack for thoughtful attention, as the year's results clearly show. In putting into effect a policy such as directed by the last convention a commissioner of the strongest possible executive ability has been required; one also who was possessed not only of the physical strength so essential to such work but above all a keen intellect, accompanied by good judgment and tact, with a resource and foresight making it possible to carry out the plans of the association and forestall as much as possible the work of the agitator in his attempts to tear down and demoralize the business of our membership.

This great foresight and study on the part of your commissioner in advance have been the means in many cases of preventing strikes and consequently saving to our members an enormous inconvenience and consequent outlay of money.

Condition of the Association.

In closing this eventful year of our work I cannot refrain from commenting upon the solidity of the affairs of the association. With increased membership, a strong field force both of immediate attaches of the official staff and competent molders under yearly contract; with a treasury in first-class condition, and a policy worthy of our unstinted support, we may certainly with every reasonable assurance look forward to a period of unexampled prosperity in our work, and make it possible for our members to conduct their foundry business on an equitable and just basis to their employees.

The Commissioner's Report.

From the report of Commissioner O. P. Briggs we make the following extracts:

Time has proved the wisdom of the action taken by the administration of 1904, when in April of that year the council, under President Frank, declared it impossible to tolerate further the methods of the Iron Molders' Union in dealing with its members by contract. This action was subsequently ratified by the convention, the New York agreement was abrogated and a fixed policy for the direction of the incoming administration was adopted. Inasmuch as it was a considerable departure from the methods pursued for several years in dealing with this union, the results were watched with the keenest interest by the officers of the association. There were among our members some who felt that possibly a mistake had been made in abrogating this agreement. True to the characteristics of the association, however, they promptly followed the advice of the council in charge of affairs during that season and contributed their usual loyal support to the policy laid down at that convention.

There were those among us who felt that the year 1905 would witness more difficulties in dealing with our men than the year previous. The experience, however, proves conclusively that results obtained without the intervention of any agreement whatever between the union and the manufacturers have been far in excess of anything ever obtained by reason of such agreements as have heretofore been experimented with.

During the fiscal year 1904 the association undertook to settle numerous difficulties with the union by virtue of the then existing New York agreement. Every one of these attempts at settlement failed. The union steadfastly maintained that every shop must be operated strictly in accordance with its antiquated constitution and by-laws. During the fiscal year 1905, without the intervention of any agreements whatever between the members of this association and the union, a very large number of difficulties have been settled and in nearly every case satisfactorily to our members. In making all of these settlements our members are to be congratulated upon the loyalty with which the policy laid down by the association has been maintained and upon the results obtained thereby.

Output Has Been Increased.

In general the output has been increased materially. Fewer petty grievances have been brought forward to annoy the manufacturer. There has been less interference by agitation and less opposition to the operation of molding machines with such labor as is required for their operation, and the restrictions heretofore imposed by the union have been very materially modified. In view of the fact that about one year ago business conditions improved somewhat it would seem plain that when the association abrogated the New York agreement it made a very marked advance in the problem of dealing with this question.

Incidentally I wish to say that in formally abrogating this agreement your officers took every precaution to see to it that no undue advantage was taken of the men. You will remember the council was directed by the 1904 convention to so abrogate it. Thirty days' notice was given the union, informing them that on December 20 members of our association would decline to be further obligated by its terms. I have yet to learn of a single foundryman who does not feel that its abrogation was a blessing to the entire foundry industry.

Decline in Union Membership.

Many of the strongest supporters of the New York agreement in years gone by now admit that it was the means of building up the Iron Molders' Union. From the best information obtainable it is believed when the agreement was first promulgated the union had about 17,000 members. At the time the agreement was abrogated it had about 86,000 members. Since then, we are reliably informed, the membership has dropped to less than 50,000.

You will also note from the report of the secretary that

during the past year we have taken in a large number of members, some 78 in all. The class of membership we have received during the past year, as well as the number of foundries, is in my judgment far in excess of anything heretofore in the experience of the association. Some members have been dropped. Nearly the entire loss has been occasioned by foundries going out of business, by financial difficulties or by the selling of plants.

Protection for Independent Workmen.

At this point I am prompted to suggest that our members in a very marked degree have followed the advice and suggestions of the officers of the National Foundrymen's Association in paying more attention to the condition and environment of the honest workingmen of this country, and also to call your attention to the methods suggested by the association for the protection of this class of workmen

Immediately following the murder of Mr. Weakley at Cincinnati in 1904 the council directed that the most aggressive action possible be taken by the association in bringing to justice the perpetrators of this crime. Considerable amounts of money and a great deal of energy have been put forth in this direction, and as has been announced to you by special circular and the *Review*, the man who actually committed the crime was placed behind the bars under a 20-year sentence.

I believe the orders of your council have been complied with to the greatest extent possible, and I wish to report the good effect such action has had upon the honest workingmen of the country, in that it is tangible evidence that this association proposes to protect them. In many localities these workingmen know it is impossible for them to receive protection at the hands of municipal authorities; they know that politics often plays so important a part in labor negotiations that the municipal officers are remiss in their duties to such an extent that a man who dares work in an open shop has no protection whatever.

On the face of it it seems farcical for a manufacturers' association to be brought face to face with municipal officers who fail to do their duty by allowing all kinds of intimidation and crime to be perpetrated upon an independent workingman. How an officer of the law can conceive it to be his duty to take sides in this issue and favor a class of men who do not represent to exceed 12 per cent. of the workingmen of the country is beyond my comprehension. I am compelled to report to you that such has been the case on numerous occasions, and I suggest the importance of thorough protection to the honest workingman, particularly in two directions:

1. That every member of this association make it his personal business to see that the faithful, law abiding, honest workman in his foundry be granted everything that is his right. See to it that his wages are what they ought to be. Do not allow the skilled men to be reduced to the level of the minimum wage principle. Deputize some officer or stockholder of your large corporations to take a personal interest in the welfare of these high grade men and assist your managers, superintendents and foremen in their behalf.

2. Use every effort within your power to see to it that such men are placed in office in your community as will remain neutral on this labor question and who will fearlessly and energetically carry out the obligations they take to maintain law and order when assuming the duties of their office. And whenever in your community a workingman is abused by reason of nonprotection by the municipal officers see to it that such officer is promptly called to account. It matters not whether the neglect of duty affects your own men or your neighbor's, join with them and bring the culprits to justice.

If the employers of labor throughout the United States and Canada will see to it that these two points are safeguarded to the greatest degree the time will soon be at hand when their strongest allies, honest workingmen, will come out fearlessly and boldly, taking an effective and decided stand against the unjust action of radical unions. Too much cannot be said upon these two important subjects.

Contract Molders.

Contracting with molders by the year for the purpose of having on hand at all times men in our employ was undertaken about 18 months since. At the outset this was an experiment, but I can assure you the experiment has been very successful. We encountered such difficulties at the start as are usual to all new methods, but to-day we have a force of men the equal of any body of men you can select. We have treated these men right, and for this they are duly appreciative. The contract we enter into is becoming more popular every day and the applications for it are so numerous that we have now a large waiting list on hand. Were there no limit to the number of men we could contract with we could obtain them in great numbers.

Apprentices.

During the last year much attention has been devoted to the apprentice question. It is evident that our members are beginning to understand that the supply of high grade molders must be kept intact, and to do so it is incumbent upon every foundryman to contribute his share. In cases where unionism is extremely strong it is impossible to educate an apprentice who will graduate a competent, high grade molder. The minute he enters the shop he is surrounded by an environment of unionism, the first principle of which is to limit production, and he is taught for the four years of his apprenticeship that a limit to his efforts must be fixed; that he has no right to go beyond this limit in his efforts to succeed. It is impossible to picture to you the rank conditions under which an apprentice is raised where unionism is at its hight.

You are now considering ways and means of educating more boys under nonunion environment, and it is to be hoped that the movement along this line already undertaken will be carried to a successful conclusion. No part of the foundryman's business to-day is of more importance than that of graduating every year as many competent molders as the condition of his plant will permit.

Literature to Molders.

At the last convention the officers were directed to circulate a reasonable amount of literature to the molders. This work has been carried on to quite an extent by the Detroit office, but with the greatest of care. We have endeavored to place before these molders a few plain facts with regard to radical unionism which they themselves could thoroughly understand, and if they doubted could easily investigate and obtain ample proof by their own efforts.

Considerable information was disseminated among the molders with regard to the Weakley murder case by simply publishing and mailing to them the court records without comment of any form. I am of the opinion that the circulation of this information has been the means of causing the radical element of the union to call a halt in their tactics of violence to quite an extent.

The majority of the workingmen of the country do not stand for slugging, intimidation and murder. All information referring to such tactics is kept from them by the union officials to the greatest extent possible. Such workingmen are not in position to investigate these matters of greatest interest to them to the extent that the employer is. I recommend that the manufacturers of this country devote more money, more time and more energy to the publication and dissemination of the proper kind of literature among the homes of the workingmen than has heretofore been the case.

Field Force.

I wish to call your attention to the field force of our organization and to the recommendations of President Towne in 1903 that larger field force be employed. I also wish to call your attention to the co-operation along this line of President Frank in 1904, when the field force was extended with very beneficial results. Our greatest results this season have been obtained by having men available for consultation on short notice. Wherever one of the field force of the organization appears it is our aim to have him in full possession of the general situation around the country, thoroughly posted upon the tactics of the union, and thus prepared to transmit to the members all information applicable to the conditions in hand at his shop.

The results of this plan have been most beneficial. As has been stated in previous reports a vast number of difficulties have been settled where representatives of the association were present to assist in the negotiations. With the idea of extending this force the association has temporarily maintained a small office in Philadelphia for the past nine months. This has enabled us to send a man to any point of the Eastern territory on short notice. You are probably aware that the Iron Molders' Union has a field force of from 20 to 30 men employed annually, scattered all over this continent, and that by reason of this large field force the union is able to place a man in touch with even the smallest shops of the country upon a very few hours' notice.

In my judgment the best results for this association can be obtained by putting into the field a force sufficient to match the efforts of the union. I do not advocate nearly as large a number; it is not necessary. But I do believe the results obtained by a larger field force have been so great that the best interests of the association will be conserved by maintaining permanently at some convenient point in the East a small office, under the direction of the central office, with a few more field men for prompt action.

Foremen's Clubs.

It has been the effort of our officers to foster the organization of foremen's clubs. In several cities results obtained from such associations have been most beneficial. A large majority of our foremen are not brought closely in touch with the general situation around the country, and for this reason do not keep alive to the progress of the times. These same men when offered an opportunity to meet the brother foremen of their town once a month and discuss the general situation among themselves in their own way, broaden out, improve their minds and better prepare themselves to perform the duties assigned them.

While this is not a work upon which the association has

incurred any expense whatever, I believe it would be worth the investment to engage actively in it in the future.

Waning Unionism and the Open Shop.

There are unmistakable signs of the disintegration of such unions as have undertaken to maintain a radical closed shop policy in the past. The Iron Molders' Union is a case in point. As I have stated above, there is no doubt that the membership of that organization has decreased very close to 50 per cent. Neither is there any doubt that the finances of this union are badly depleted. If there is a remedy for its weakened condition it is in conjunction with a large number of other unions which are now said to be considering the question of throwing all shops open to nonunion men, in the hope that by so doing they will be able to increase their numbers and strengthen their finances.

I am convinced that it is generally conceded in the inner circles of unionism that the open shop has come to stay, and that the union which undertakes persistently to fight for the closed shop is wasting its energies and its money.

There is certainly a shining example of what can be done for the union workingmen in the action of the Amalgamated Society of Engineers of London, which several years ago spent over $2,000,000 in attempting to force a closed shop. They gave it up and entered into an agreement with the manufacturers strictly on an open shop basis. Incidentally I wish to inform you that the conditions of the agreement between that association of manufacturers and the union referred to in London are almost identical in every principle with the agreement your association offered the molders in 1903.

Local Employers' Associations.

It has been my aim to co-operate with kindred employers' associations to the greatest extent possible. Ibelieve the interests of the national are fostered and improved by every local association that is formed. It is true that the members of the local are not all members of the national. It is also true that in nearly every foundry center the operations of the local are to a large extent guided by the action of the national. My experience in dealing with these local associations has been most agreeable. I find the officers consider our interests mutual and manifest every desire to assist in promoting our interests jointly.

Recommendations.

In view of my retiring from this office at the close of the present convention I wish to make the following recommendations:

That a few more field men be employed, as many as may be consistent with good management.

That the present method of employing molders by the year to assist our members in times of trouble be maintained and enlarged to a reasonable extent.

That a small branch office be maintained at some desirable point in the East and that your council consider establishing a similar office in Chicago. It will save time and traveling expense to a large extent and render more prompt service.

That every effort within your power be exercised in protecting and advancing your honest, industrious men.

That you exercise greater care in selecting and educating your apprentices.

That you pay your skilled men all you can possibly afford to pay them. Investigate personally the slightest complain of this class of men. Protect them from all forms of violence and intimidation. Relentlessly follow the murderer, the slugger and the intimidator until justice is meted out to him.

Foster the individual contract to the greatest possible extent.

Use every effort to convince your employees of the iniquity of the minimum wage principle and the limit of the workman's earning capacity, the two greatest curses of unionism as practiced in this country.

I have nothing to say against organized labor when the functions of such organization are confined to reasonable law respecting methods. Could we bring about a condition whereby all honest, well meaning, highly skilled workingmen could receive full compensation for their services, instead of being reduced to the level caused by the minimum wage principle, a condition whereby this same class of men could be accorded free speech and a free vote in the lodge room and out of it, we should soon find this class of men in such a large majority that nine-tenths of our labor difficulties would vanish.

Energetically continue your well established motto. Raise the standard of your employees.

In conclusion I wish to urge the incoming administration to retain the services of the present corps of assistants connected with this work. In Mr. McClintock, Mr. Hutchings, Mr. Taylor, Mr. McKinly and Mr. Eisig you have a body of men second to none in their respective capacities. The welfare of the association and its members is first in the minds of every one of them. The working day is always too short for them and the problems never too difficult of solution.

The Secretary's Report.

The secretary, F. W. Hutchings, presented a résume of the work of the association's headquarters at Detroit, Mich., including the operations of both the clerical and field forces in the year. The report indicated that in connection with the strikes carried over from the preceding year and those started in new fields, a vast amount of detail requires attention apart from procuring men and setting them at work. The strikes handled in the year were reviewed and their present status noted. In all cases where strikes had broken out and that are unsettled to-day work is being carried on on the open shop basis. In the year many outside firms had become interested in the association and had applied for membership, the association now representing 500 shops, many of them among the most important in the country. The secretary referred at some length to what had been done in the year in distributing literature among foundry employees.

The Philadelphia Strike.

The last business of the first session was the consideration of the strike situation at Philadelphia arising out of the demands of the coremakers for an advance in the minimum from $2.50 to $2.75 and for recognition of the union by dealing with its business agent. The situation was presented to the association by Ex-President I. W. Frank, Pittsburgh, and Stanley G. Flagg, Jr., and Wm. S. Hallowell, Philadelphia. The tenor of their remarks and the spirit with which the members responded to them indicated that there was no such division on the issues raised at Philadelphia as the union's officers had predicted and hoped for. The following resolution was adopted with much enthusiasm:

Resolved, That this association in convention assembled recognizes in the Philadelphia strike of molders and coremakers a deliberate attempt on the part of the Iron Molders' Union of North America to force upon our members contracts contrary to the spirit of our approved policy and contrary to the Constitution of the United States and the civil rights of our members, in preventing the exercise of the right of individual contract between employers and employees. And be it further

Resolved, That the support given by our officers is fully indorsed and that the incoming officers and council are hereby authorized and directed to use all the moneys, ways and means at our command and to further assess our members to the extent necessary to establish the principle which is so grossly assailed.

WEDNESDAY AFTERNOON.

"Protection of Workmen Against Intimidation," was the first subject taken up for discussion at the afternoon session, the first speaker being Joseph A. Stone, of the Riverside Foundry Company, Cleveland, who strongly emphasized the need of steps ensuring the safety of workmen who were willing to work when others were not—and this, even though the local authorities were remiss in the duty of suppressing disorder and preventing intimidation.

Other participants in this discussion were J. H. Webster, Variety Iron Works, Cleveland, O.; F. T. Towne, Yale & Towne Mfg. Company, Stamford, Conn.; T. E. Durban, Erie City Iron Works, Erie, Pa.; F. T. Giblin, Giblin & Co., Utica, N. Y. It was the consensus of opinion that if it became known that the association would follow up every case in which the lives of employees of its members were put in jeopardy by other workmen, this would do more than any other thing to counteract the influence of the lawless element in unions. It was argued that strikers have no more right to the streets than other men—the right to use thoroughfares in proximity to shops simply for ingress and egress and to pass to and fro. The general knowledge that under no circumstances would a criminal prosecution once started by the association be abandoned, would have a powerful deterrent influence, it was believed. Bankers spend large sums in running down dishonest employees; express companies follow their dishonest employees to the remotest corners of the country to bring them to justice; jewelers likewise make thorough work of the pursuit of those who steal from them. It was most important where the law was violated in connection with

strikes and assault and even murder committed that there should be no let up until the guilty men were convicted and punished.

In connection with this discussion Mr. Durban favored a more direct way of dealing with some of the acts of labor unions than by injunction. He would have legislation putting the lawless unionists on the defensive, and considered that instead of constantly having to work to defeat bills proposed by labor unions, employers should work actively for the enactment of legislation putting restraints on the unions. He would have them put in a position of more direct amenability to law. Corporations are taxed in the various States in which they do business. It is time to tax the labor unions, which are engaged in the business of selling labor under contract.

A resolution introduced by Mr. Towne was passed as follows:

Resolved, That it is the sense of this convention that the policy of the past and present Administrative Councils in prosecuting unlawful acts of organized or unorganized labor be hereby indorsed, and the incoming officers and Administrative Council be instructed to pursue this policy and to incur such expense in the prosecution of lawbreakers as may be necessary to bring them to justice.

"The desirability of protecting members of the association against the organization of foundry helpers, chippers, cleaners and cupola tenders" was another topic set down on the programme for Wednesday afternoon. After some discussion the matter was referred to the incoming Administrative Council.

The Operation of Molding Machines.

Chairman Covell, of the Committee on Resolutions, then announced the topic "Machine Operators: How to Obtain the Best Results with Molding Machines," and called on A. J. Caldwell of New York to introduce the subject. Mr. Caldwell's first recommendation was that in putting in machines foundrymen should begin with unskilled mechanics and then keep the operation of the machines in the hands of such men. The object is to take the molding operation from the man and put it in the control of a mechanical device. Two important considerations enter into the question of using a machine for any particular job—first, the character of the work, and, second, whether it is worth while to put it on the machine. The advantages of employing molding machines were referred to at some length. Restriction of output by union rules often forced the introduction of the machine. Reduction in the amount of scrap due to bad work is an important advantage of the machine; also reduction in the amount of rough castings on hand at a given time, the machine turning out castings more nearly in their final form. The machine permits of better handling of the working force. If work drops off the unskilled workman operating the machine can if necessary be put temporarily on some lower form of unskilled work. In times of trouble the molding machine is one of the best possible foundry adjuncts. In one shop in which 40 per cent. of the work was made on the floor in beds the molders went out on a strike. They were never needed again. The work was transferred to molding machines and the shop thereafter went on with only six or eight molders for special work. The machine also reduces the force needed in the core room and reduces wear and tear and repairs of patterns.

John B. Jones, Utica Heater Company, told of the effectiveness of molding machines as employed in Utica in the months of the strike. Both squeezers and stripping plate machines had been used and work had been made up to 44 inches diameter, weighing only 120 pounds to the piece. On every such piece seven pounds of iron had been saved by the use of the machine. The only serious question is getting men who will apply the pattern to the machine. In Utica only common labor had been used.

In reply to the question when a plain stripping plate machine was preferable to a power rammer Mr. Caldwell said this must be determined by the work. It could not be decided by any rule any more than it could be said that a slotter was better than a planer or a drill press better than a lathe. Another member said in this connection that hand ramming machines for work less than 6 inches deep and power ramming machines for work beyond 6 inches had been the rule in his foundry.

W. F. Prince of the International Steam Pump Company, Harrison, N. J., said the first essential in using molding machines was to know how to put the work on the machine. Molding machine practice cannot be told, it must be learned. It was eminently a matter of using brains, of putting brains into the machine, so to speak, and the great advantage is that when the man goes the machine is still there. He recalled the visit to his shop of a prominent molders' union official from England. A steam cylinder weighing 1100 pounds was being molded by a machine. Two laborers with the machine turned out five a day, whereas one a day had been turned out previously by a skilled molder. The visitor questioned whether the strain of such a pace was not hard on the workmen. Mr. Prince sent for the two men and made inquiry as to their physical condition. One who had weighed 150 pounds on beginning work with the machine had gone up to 190 pounds, the other had gained the difference between 165 and 212 pounds. The visitor admitted that there was no evidence that the work was hurting them. They were then earning from $3 to $3.50 a day. The development of effective work with molding machines, the speaker contended, meant starting right at the bottom and having conditions right all the way along.

One great advantage of the molding machine, according to F. T. Giblin, Utica, N. Y., was that the operator earned more than ever before and the shop made more. The most difficult problems connected with their use, he considered, must be worked out in the pattern shop rather than in the foundry.

As illustrating the economies of the machine V. M. Moore, Chisholm & Moore Mfg. Company, Cleveland, Ohio, cited a casting of which 20 were made in a day at 20 cents each by hand molding. With the machine two men at $2.50 a day each turned out 60, which thus cost about 8.3 cents each.

President Pessano recalled an experience. Five pieces were made by hand in his foundry by a molder who received $2.75 a day. The molder was told by another workman that he was doing too much, that three a day was sufficient. Within a day after the management contracted for a molding machine costing $800 to do this work, though against the protest of the manufacturer of the machine who was not sure it would be a success on such work. It was not long before the machine was doing perfect work and turning out molds at 14 cents each that formerly cost 55 cents. A large number of the same machines were then installed.

Co-operation with the National Metal Trades Association.

The topic, "Co-operation With Kindred Associations," which it was well understood referred directly to a plan for closer relations with the National Metal Trades Association, was taken up on the introduction of the report of the special committee on this subject. Wm. H. Pfahler detailed the steps taken, beginning with the resolution passed at the National Metal Trades Association meeting at Chicago in March, 1905, providing for a committee of three to confer with a similar committee from the National Founders' Association. The joint committee had formulated a plan which would save a good many thousand dollars in administrative expenses and at the same time keep the two organizations separate in their identity, while permitting of more effective work and giving them in their co-operative relation much greater influence.

Mr. Pfahler presented the plan, stating that it had already received the approval of the Administrative Council of the National Metal Trades Association, and on the day preceding had been unanimously approved by the Administrative Council of the National Founders' Association. After some discussion the convention voted to ratify the plan and ordered it submitted to letter ballot of the membership. At the request of officers of the association, in view of the fact that the two organizations are yet to vote on the proposal, details of its provisions are omitted in this report.

WEDNESDAY EVENING.

On Wednesday evening the annual dinner of the association was held in the banquet room of the Hotel Astor and the occasion was interesting in many respects. Following the innovation introduced the preceding year the Banquet Committee arranged for three addresses by speakers outside of the association instead of having a programme of miscellaneous toasts. Walter Russel of the Russel Wheel & Foundry Company, Detroit, Mich., presided over the after dinner programme, and in his story telling and his happy turns in introducing the speakers lived up to his reputation as master of such occasions.

It has been the custom for the association to mark its annual function by apprising the retiring president of its good opinion of his work. Thomas E. Durban of the Erie City Iron Works, Erie, Pa., had been selected to express the sentiments of his fellow members, and at the conclusion of Mr. Durban's glowing tribute President Pessano was presented with a beautiful silver tea service and tray and a silver water pitcher. Each piece bore the monogram of the recipient, and on the tray was the inscription, "Presented to Antonio Charles Pessano in Appreciation of His Services as President of the National Founders' Association, 1904-1905." In responding Mr. Pessano disclaimed credit for the achievements of the year, saying that any success that had been won was due to those whom he followed and of whose methods he had been a student, referring in this allusion to Messrs. Gates, Letchworth, Hoyt, Sargent, Towne and Frank. The presentation was accompanied by an enthusiastic demonstration which indicated how completely the president had won the regard of the membership.

First on the prearranged programme was Dr. J. Leonard Levy of Pittsburgh, who spoke on "The Might of Right." His address was pitched on a high plane and emphasized some considerations on the moral side of the relations of capital and labor. The speaker considered that the real yellow peril in modern life was not Japan, as the German Emperor had said, but gold. One practical question touched upon was that of restoring the American merchant marine, the speaker advocating the extension of the protective policy to shipbuilding.

J. Hampton Moore of Philadelphia, the first chief of the Bureau of Manufactures at Washington, spoke on the relation of the Government to manufacturing interests. He pointed out that the census of 1900 showed $3 produced by the manufacturing industries of the country to every dollar by the farmers. Agriculture has been directly encouraged by the Government, but not until three years ago did Congress take action that made it possible to employ the machinery of the Government in the promotion of trade in our manufactures in foreign countries. He referred to the modest beginning of the Bureau of Manufactures, the staff consisting of a chief and six civil service clerks, and the entire appropriation being $11,000. It was argued that as the manufacturers of the United States are now producing more than can be disposed of at home a market must be found in other countries, yet sharp competition is to be expected. The Yankee notion that we know it all in this country is to be rudely shaken in the competition that will yet develop for the trade that we get from Europe, in Asiatic countries and in the more developed portions of Africa. The speaker advocated a larger appropriation for the Bureau of Manufactures. He believed that if the Consuls were taken from the Department of State and put where they should be, under the Department of Commerce and Labor, the opportunities for trade abroad would soon be better understood and our manufacturers be better prepared to grasp them.

Dr. S. C. Dickey of the Winona Technical Institute, Indianapolis, Ind., spoke briefly, calling attention to the fact that while 2,500,000 boys were to be found in the first grade in the public schools of the country the number in the eighth grade was only 200,000. The problem of the disappearance of the 2,300,000 from school between the ages of 6 and 15 is one which should give the manufacturer much to think of, for it meant that hundreds of thousands of boys were growing up untrained and unfitted for life. Informal remarks were made on the call of the toastmaster by F. B. Farnsworth, New Haven, Conn.; C. Bermingham, Kingston, Ont., and John A. Penton, Cleveland. In connection with some remarks favoring Government encouragement to shipbuilding and ship owning in the United States, the last speaker introduced the following resolution, which was passed by a *viva voce* vote: "That this convention of the National Founders' Association most earnestly urges that our National legislators give their early attention to the deplorable condition of the American merchant marine; that we urge the immediate passage of the Merchant Marine bill proposed by the Merchant Marine Commission and submitted to the last Congress as a part of the commission's report."

THURSDAY MORNING.

The training of foremen was the first topic discussed at the Thursday morning session. Thomas E. Durban of the Erie City Iron Works told of the plan followed at Erie, Pa., which had been referred to in the reports of President Pessano and Commissioner Briggs as worthy of imitation in other cities. The organization of the foremen of Erie under their own initiative had cured to a very considerable extent the evil of deliberate limitation of output and had afforded an intelligent basis for the differentials in favor of skilled men. The fact that there is to-day no closed shop in Erie the speaker considered to be largely due to the better understanding arrived at from the organization of the foremen. The subject was further discussed by President Pessano, Joseph A. Stone of the Riverside Foundry Company, Cleveland; W. F. Prince of the International Steam Pump Company, Harrison, N. J.; John B. Jones of the Utica Heater Company, Utica, N. Y.; E. Burkitt of the Southern Engine & Boiler Works, Jackson, Tenn., and George Q. Thornton of the Carondelet Foundry Company, St. Louis, Mo. The question was finally referred to the new Administrative Council for investigation and for suggestion to the membership.

Education of Apprentices.

The report of the Committee on the Training of Apprentices and on the proposition that the association cooperate with the Winona Technical Institute of Indianapolis in the establishment of a foundry trade school was next taken up for consideration. This committee consisted of William H. Pfahler of Philadelphia; Richard C. Oliphant of the Trenton Malleable Iron Company, Trenton, N. J., and George H. Gibby of the Gibby Foundry Company, East Boston, Mass. It was appointed by the Administrative Council in February, 1905, to consider the suggestion that if members of the National Founders' Association would pay for a number of scholarships in the Winona Technical Institute of Indianapolis at the rate of $100 each per year it would be possible to develop a strong foundry department which would compare creditably with departments of that school in which boys are being trained for other trades. The committee had made a preliminary report to the August meeting of the Administrative Council held in Detroit. It recommended that the National Founders' Association pledge itself to the directors of the Winona Technical Institute to pay for not less than 30 scholarships at a cost of $100 per annum for each scholar for four years. The Administrative Council at that meeting adopted the report and recommended it for ratification by the convention.

Mr. Pfahler explained the necessity for undertaking any co-operation with the Winona Technical Institute. He had investigated the work of the institute and found that it was succeeding in its aim to make all-around mechanics and all-around men. The $100 per year advanced to the student is paid back, each boy giving his note for the amount advanced to him. The school has not lost 5 per cent. on these students' pledges. Mr. Pfahler referred to the impossibility under the foundry conditions of today of giving to boys entering the foundry the knowledge and skill which many listening to him had received through the kindness and interest of their foundry tutors. Personally he had urged upon Dr. Dickey, president of the Winona Technical Institute, that his school prepare not only to make molders but foundry foremen. A knowledge of electricity and compressed air as employed in modern foundries would be included in the course;

also the operation of molding machines and training in methods of foundry accounting and in the responsibilities of foremen and superintendents.

In connection with the consideration of this subject the convention was addressed by Dr. S. C. Dickey, president of the Winona Technical Institute, who explained the work it had done in teaching other trades and emphasized the obligation upon manufacturers to give the American boy the opportunity which under present conditions he is not receiving. Among well-known men interested in the work of the institute were mentioned Hugh H. Hanna of the Atlas Engine Works, Indianapolis; John H. Holliday, president of the Union Trust Company, Indianapolis; H. J. Heinz, Pittsburgh; Alexander McDonald of Cincinnati and John M. Studebaker of South Bend, Ind.

The proposal was warmly received by the convention. Mr. Pfahler offered a resolution, which was seconded by John L. Ketcham, that the association pledge 30 scholarships at $100 each per year for four years. It was adopted unanimously.

The report of the Special Finance Committee, consisting of W. D. Sayle, Cleveland, and Geo. E. Emmons, Schenectady, N. Y., was presented by Mr. Sayle. It showed an important gain in the year in every feature of the association's finances.

A resolution was introduced by F. T. Giblin, Utica, N. Y., providing for the establishment of a legal department through which members should be advised as to their rights and as to methods of procedure in case of strikes. After some discussion the matter was referred to the incoming Administrative Council.

The Education of Apprentices.

One question that has come up at every convention of the association was again given attention—namely, the steps that should be taken for recruiting the ranks of skilled molders. The discussion was participated in by John A. Rathbone, International Heater Company, Utica, N. Y.; John Knickerbocker, Eddy Valve Company, New York; James F. Lanigan, Davis Foundry Company, Lawrence, Mass.; Edward Maher, Maher & Flockhart, Newark, N. J.; John Magee, Magee Furnace Company, Boston, and Charles A. Rathbone of the Buhl Malleable Company, Detroit. It was brought out under the union apprenticeship ratio that the foundry trade is getting but one new molder every 32 years for each journeyman molder employed, and 32 years, it need not be said, is far longer than the effective term of service of the average molder. Foundrymen, some of the speakers said, seem to be willing to pay good prices to get molders from each other, but in many cases the responsibility of educating apprentices is being shirked. Cases were cited of foundrymen who admitted that they preferred to let "the other fellow" do the educating. A smaller ratio of apprentices was urged by every speaker. Instead of 1 to 8 the ratio in the minds of some should be 1 to 3. In union shops it is now impossible to get new molders fast enough to replace losses. One of the speakers, in answer to the statement that those who educated apprentices only turned them out for other foundries to employ, said that he expected his apprentices to go elsewhere on completing their term. He was willing to take his own chances on either getting them back in time or having the apprentices of others come to him. It was stated that at Detroit the foundrymen had recently changed the ratio of apprentices from 1 to 8 to 1 to 5. While the molders threatened at first to go out on a strike they eventually thought better of it and went to work, accepting the new ratio.

After the subject had been thoroughly gone over a resolution was adopted as presented by H. N. Covell declaring it to be the duty of the members of the association to educate as many apprentices as possible and to employ the maximum number of apprentices in their shops.

THURSDAY AFTERNOON.

The first action of the afternoon session was the adoption of a resolution calling for a meeting of the Administrative Council on the day following the adjournment of the convention.

G. E. Emmons, of the General Electric Company, Schenectady, N. Y., presented resolutions which were enthusiastically adopted expressing the association's appreciation of the services of the retiring commissioner, O. P. Briggs, and thanking him heartily.

A resolution was offered by F. T. Towne eulogizing William F. Pfahler of Philadelphia and thanking him for his earnest efforts in the association's behalf from its beginning. The resolution was adopted by a unanimous rising vote.

Election of Officers.

The event of the afternoon was the presentation of the report of the Nominating Committee, consisting of W. D. Sargent, F. T. Towne and I. W. Frank. In the absence of Mr. Sargent because of illness Mr. Towne presented the committee's recommendations. He told of the efforts of the committee to induce C. Bermingham, vice-president in the past year, to accept the nomination for president. Mr. Bermingham felt, however, that in justice to other interests in his hands he could not serve the association in that capacity. The speaker paid a rich tribute to Mr. Bermingham's ability and devotion and expressed regret at his irrevocable decision. In casting about for the right man for the place it was felt that no one in the association was so fitted for it as the retiring commissioner, Mr. Briggs. The committee thought also that in no better way could the association express its appreciation of Mr. Briggs' work and its confidence in him. The convention in a spirited way seconded the proposal of Mr. Briggs' name and he was unanimously elected. Messrs. Bermingham and Covell escorted the president-elect to the chair and Mr. Briggs paid a warm tribute to those who had been associated with him in the work of the past two years. He said he believed in tact, diplomacy, patience and the peaceful settlement of all difficulties. "If, however," added the speaker, "diplomacy and conciliation do not prevail and this organization is forced to become a fighting machine, then I say let it be a fight and a fight to a finish."

W. S. Hallowell, Philadelphia, presented a resolution which was heartily adopted thanking Mr. Pessano for the self-sacrificing manner in which he had served the association and expressing deep appreciation and gratitude for all he had done in its behalf.

Resuming the report of the Nominating Committee, Mr. Towne presented the name of Henry A. Carpenter of A. Carpenter & Sons Foundry Company, Providence, R. I., for the vice-presidency. The nomination was seconded by M. H. Barker, and Mr. Carpenter was chosen unanimously. Messrs. Pfahler and Bermingham presented Mr. Carpenter to the association and in a forceful speech he pledged his best efforts to the work.

The State Savings Bank of Detroit was elected treasurer of the association for another year.

Mr. Towne referred to the good work of Secretary F. W. Hutchings in the past year and recommended that the association re-elect him, which was done by a unanimous vote.

Wm. H. Pfahler was elected for another year as honorary member of the Administrative Council, a graceful tribute being paid to him in this connection by O. P. Letchworth.

While the commissioner and vice-commissioner are elected by the Administrative Council, the Nominating Committee took occasion to make recommendations for these offices, and both were promptly approved by the association. As successor to Commissioner Briggs the committee recommended to the incoming Administrative Council A. J. Caldwell of New York, one of the founders of the association, who had served on the Administrative Council for a number of years. For vice-commissioner the committee recommended A. E. McClintock, who was promoted from secretary to vice-commissioner one year ago and who had served with great acceptance.

The following district committees were elected, the Nominating Committee presenting the names for each district. In each case the chairman and vice-chairman were elected by the respective committees and these elec-

tions were reported to the secretary. Owing to the absence of a quorum no election was held in the Fourth and Sixth districts:

First District.—F. B. Farnsworth, McLagon Foundry Company, New Haven, Conn., chairman; A. W. Whitcomb, Whitcomb-Blaisdell Machine Tool Company, Worcester, Mass., vice-chairman! F. H. Brown, Davis & Farnum Mfg. Company, Waltham, Mass.; A. N. Abbe, P. & F. Corbin, New Britain, Conn.; J. D. Hunter, James Hunter Machine Company, North Adams, Mass.

Second District.—R. C. Oliphant, Trenton Malleable Iron Company, Trenton, N. J., chairman; H. W. Wendt, Buffalo Forge Company, Buffalo, N. Y., vice-chairman; F. E. Wheeler, International Heater Company, Utica, N. Y.; Arthur E. Barlow, Newark, N. J.; Gilbert H. Johnson, Isaac G. Johnson & Co., Spuyten Duyvil, N. Y.

Third District.—Stanley G. Flagg, Ja., Stanley G. Flagg & Co., Philadelphia, Pa., chairman; Thomas E. Durban, Erie City Iron Works, Erie, Pa., vice-chairman; John E. Harbster, Reading Hardware Company, Reading, Pa.; Stuart R. Carr, Stuart R. Carr & Co., Baltimore, Md.; George Mesta, Mesta Machine Company, Pittsburgh, Pa.

Fourth District.—William Gilbert, Buckeye Foundry Company, Cincinnati, Ohio; Irving H. Reynolds, William Tod Company, Youngstown, Ohio; H. J. Boggis, Taylor & Boggis Foundry Company, Cleveland, Ohio; W. H. Morgan, Morgan Engineering Company, Alliance, Ohio; C. B. Calder, Detroit Shipbuilding Company, Detroit, Mich. (Chairman and vice-chairman not yet elected.)

Fifth District.—Ward W. Willits, Adams & Westlake Company, Chicago, Ill., chairman; George Q. Thornton, Carondelet Foundry Company, St. Louis, Mo., vice-chairman; Charles A. Barnard, Barnard & Leas Mfg. Company, Moline, Ill.; John W. Gardner, Gardner Governor Company, Quincy, Ill.; T. R. Kackley, Atlas Engine Works, Indianapolis, Ind.

Sixth District.—O. B. Kinnard, Kinnard-Haines Company, Minneapolis, Minn.; H. M. Wallis, J. I. Case Plow Works, Racine, Wis.; George C. Forgeot, Allis-Chalmers Company, Milwaukee, Wis.; George H. Smith, George H. Smith Steel Castings Company, Milwaukee, Wis.; A. J. Brawley, South Park Foundry & Machine Company, St. Paul, Minn. (Chairman and vice-chairman not yet elected.)

Seventh District.—George W. Watts, Canada Foundry Company, Limited, Toronto, Ont., chairman; H. Cockshutt, Cockshutt Plow Company, Limited, Brantford, Ont.; Charles H. Carrier, Carrier, Laine & Co., Levis, Que.; K. W. Blackwell, Montreal Steel Works, Montreal, Que.

Eighth District.—E. Burkitt, Southern Engine & Boiler Works, Jackson, Tenn., chairman; T. J. Watson, Caldwell-Watson Foundry & Machine Company, Birmingham, Ala., vice chairman; J. D. Dimmick, Dimmick Pipe Company, Birmingham, Ala.; A. D. Schofield, J. S. Schofield's Sons Company, Macon, Ga.; Samuel D. Jones, Atlanta Stove Company, Atlanta, Ga.

At the conclusion of the election the convention adjourned to give way to the meetings of the district committees.

The New Commissioner.

At the meeting of the Administrative Council at the Hotel Astor on Friday, November 17, the nominations of A. J. Caldwell as commissioner and of A. E. McClintock as vice-commissioner were unanimously confirmed. Mr. Caldwell was one of the originators of the Employees' Association movement in the foundry and metal trades, and his experience has been large in the engineering and operating work of foundries and machine shops. He took a course in mechanical engineering at the University of Maine, and on graduating went to New York City, entering the shop of Charles H. De La Matyr at the foot of Fourteenth street. Later he was in the employ of the Knickerbocker Steamship Line from New York to New Orleans as an oiler, and afterward was engineer on this line. In 1880 he secured a position in the drafting room of the Henry R. Worthington Works, Brooklyn, and in time went into the shops, a few years later having charge of erecting work, and finally becoming general superintendent. This last position he occupied for seven years prior to 1901, having thus been with the company for 21 years. He became connected with the Crane Company, Chicago, in 1901, as general superintendent, remaining in that position until August, 1905, when he completed the work of superintending the construction of the Bridgeport, Conn., or Eaton, Cole & Burnham, plant. Mr. Caldwell's headquarters as commissioner of the National Founders' Association will be at Detroit.

Milliken Bros. New Steel Plant.

Milliken Bros., Incorporated, 11 Broadway, New York, have decided to go ahead with the erection of the steel plant at Staten Island which has been under contemplation for several months. The company has a site covering several hundred acres of land with over one-third mile of water front on the north shore of Staten Island, and for some time reports have been current that the company contemplated the erection of a basic open hearth steel plant to produce the shapes used by them in their steel construction work. Foster Milliken, one of the partners in the firm, stated to a representative of *The Iron Age* on Tuesday that it has been decided to construct the plant as soon as the equipment can be purchased. It will consist of five 50-ton open hearth furnaces, blooming and finishing mills, engine and boiler houses and other structures. No announcement has been made as yet as to the dimensions of the buildings to be erected, but the company is already purchasing its equipment. Milliken Bros. have been engaged in the steel and iron business in New York City for nearly 50 years. The structural business which the company has developed has grown rapidly in the past few years and now extends to all parts of the world.

Some time ago, in order to more conveniently handle the business, it was decided to conduct it under the corporate form and the firm was reorganized with a capital of $2,500,000, which is held entirely by Edward S. Milliken and Foster Milliken. No new interests have been included in the new arrangement. The company has found it necessary to erect mills for rolling structural shapes and plates in order to hold and control its export business. The location of this plant on tidewater will be advantageous to export trade. George F. Reis, formerly general manager of the Illinois Steel Company and later general manager of the Lackawanna Steel Company of Buffalo, N. Y., and Alexander K. Hamilton, lately chief engineer of the Lackawanna Steel Company, entered the employment of the Milliken Bros. several weeks ago and they have been preparing the plans with other engineers. The Staten Island property is more than ample in size for the company's present bridge and structural plant and there will be plenty of room on it for the construction of the new works.

Two More Carrie Furnaces.—In the past several months the Carnegie Steel Company has secured a large amount of land adjacent to its Carrie furnaces at Rankin, Pittsburgh. This ground will be used for the building of two more blast furnaces, making a total of seven at this location. These furnaces will likely be patterned after the present stacks and each will have a capacity of at least 500 tons a day. Work on them will hardly be started before next year.

The Illinois Steel Company has awarded contracts for the installation of one 10 and one 12 inch mill at its Milwaukee works. These mills are designed for rolling merchant bar sizes and shapes, and owing to the large tonnage of this material on the company's books an effort will be made to place them in operation shortly after the first of the year. The new open hearth plant, which is nder erection at South Chicago and which will contain seven 50-ton furnaces, is rapidly nearing completion and from present indications its output will be available about February 1.

The Postmaster-General estimates postal service needs for the fiscal year 1907 at $193,000,000, an increase of $12,000,000.

THE IRON AGE

1855—1905.

New York, Thursday, November 23, 1905.

DAVID WILLIAMS COMPANY, - - - - - - - PUBLISHER
CHARLES KIRCHHOFF, - - - - - - - } EDITORS
GEO. W. COPE, - - - - - - - - } EDITORS
A. I. FINDLEY, - - - - - - - - } EDITORS
RICHARD R. WILLIAMS. - - - - - - - - HARDWARE EDITOR

The Foundry Employers' Movement.

The ninth annual convention of the National Founders' Association, held in New York last week, marked the completion of a year's operations under the new policy adopted at Cincinnati in November, 1904. While that action has been generally designated as the abrogation of the New York Agreement, under which conference relations had been maintained with the Iron Molders' Union, it involved much more. The "Outline of Policy" adopted at the same convention at Cincinnati provided substantially for the open shop, for the removal of restriction of output by union regulations, for piece work or premium plan as well as day work, for the free use of molding machines, for such an increase in the number of apprentices as would meet the requirements of the industry, for payments to workmen in proportion to their work and their efficiency, and finally for arbitration by the employer and his employees of any differences that might arise. In the past year the association has adhered consistently to this policy, with the result that no agreements with the Iron Molders' Union now exist to which the association or any local groups of its members are parties. A considerable number of shops that were in control of the union a year ago are now open shops. The new policy of the association has brought to it a goodly number of important firms who refused to affiliate with it in the days of its conference relations with the union, their claim having been that such relations meant the fastening upon their shops of all the uneconomic and unfair hamperings of the union and left them handicapped in the race with their competitors. To-day the 500 foundries included in the association belong to firms and corporations whose combined capital is estimated at $500,000,000. Many of these foundries are the property of large industrial consolidations whose principal operations are in other than foundry lines.

It is significant that while the National Founders' Association has added greatly to its strength since it declared for the open shop and for freedom from unjust union restrictions, the Iron Molders' Union has declined materially both in membership and financial resources. Commissioner Briggs' report estimated that the shrinkage in the union's membership had been from 86,000, at high point in 1903, to less than 50,000. Such a loss might well give material for reflection to the radical union leaders whose policy led to the severance of conference relations with the founders one year ago. Interpreting the conciliatory attitude of the founders' organization as a sign of weakness, they had pressed their advantage to the point of seeking to convert the National Founders' Association into a machine for fastening on all its membership the union straightjacket. It was a case of insisting on too much and losing all. Possibly the union's years of experience in dealing with one set of manufacturers in the foundry trade inspired its confidence that the National Founders' Association would be equally liberal and compliant. At all events its ability to force the closed shop upon the general foundry trade of the country has not been less in many years than it is to-day.

What most impressed one who has had opportunity to attend the National Founders' Association conventions of other years was the proof the 1905 convention gave of the solidifying and seasoning process. The association seems to have found itself. The Outline of Policy had brought cohesion and had given definiteness to every aim. And it was made evident in many ways that it is not antagonism to unions *per se* that actuates the association but a strenuous opposition to such control of the foundry by the union as left to the proprietor little more play for his energies than that involved in getting orders and providing for pay rolls.

Directly in line with its resistance of the union's apprenticeship rules, the association decided to pay for the tuition of 30 boys for four years in a foundry school at Indianapolis. Following out its policy of encouraging skilled workmen to the utmost it will reward men of capacity according to their performance, and will oppose such advances in minimum rates as would be at the expense of high grade men, while they would compel the discharge from the shop of older men whose earning power had diminished. Perhaps most emphasis was laid by the convention upon the protection of men who were willing to work when others sought to compel idleness. Law enforcement and certainty of punishment to the assailant of law abiding workmen are cardinal planks in the association's platform. Other features of its work that are to be urged forward are the cultivation of closer relations between employers and their foremen and between employers and their men, particularly those who show aptitude and interest.

As a development in the employers' organization movement the action of the convention looking to closer relations with the National Metal Trades Association was important. The proposal for co-operation between the two in administrative work was unanimously indorsed, and the working out of the plans in contemplation is expected to add to the influence and effectiveness of both associations. Both are to-day in a stronger position than ever. They have arrived at that stage when the best talent in their ranks must be kept at the front that there be no unwise use of the tremendous power they are now able to wield.

The Labor Bureau and the Labor Famine.

It has been fully demonstrated that the labor bureau, now to be found in so many cities, has been of much benefit to the workman during times of business depression, but it has remained for a period of great prosperity, when labor is scarce, to prove the real worth of the institution to the employer. For several months labor has been at a premium and manufacturers, especially in metal lines, have been compelled to hire many men who have proved themselves far from fitted to be included in the class of skilled labor. Every shop has had its shifting element, men who were tried and found wanting, and their successors, who have failed in the same way, until employers have become so discouraged that an applicant for work is regarded with suspicion. This is hardly an exaggerated statement of present conditions. It is a good rule that the man who applies for work in such times as these can hardly be desirable. There are exceptions, as, for instance, in the case of men who for some reason have been away from work and desire to return or who have had difficulties in their former employment for which they themselves were not wholly, perhaps not at all, to blame. But these are genuine exceptions.

The labor bureau has been a great assistance in dealing with applicants. If they have worked in the same city their record should be on the cards in the cabinet of the bureau. The manufacturer to whom such a man applies for work has only to communicate with the bureau to find out the desired industrial pedigree. Occasionally a skilled workman with a first-rate record is found, but usually the reverse is true. One machine tool builder states that in a recent week he lost three new men, all because of habits which rendered them undesirable. Where there is no labor bureau manufacturers have to ascertain the merits of the applicant by experience, which is rather unsatisfactory. It has been demonstrated that where such men have been hired the production did not begin to be commensurate with the increase in payroll. Several instances are reported of machine shops actually operating with a smaller working force than a month ago, in the face of a business which has increased in that period, because the working force with new men added proved less efficient as a unit than without them.

There is another usefulness of the labor bureau, in preventing a form of extortion on the part of unscrupulous workmen who try to take advantage of their employers by reporting fictitious offers for their services in the hope of having the quoted figures met rather than to see the men go. The manufacturer usually knows his skilled men pretty well, either through personal knowledge or through the superintendent or foreman. In every shop there are workmen whose word would be accepted if they should state that they had received offers to go elsewhere at advanced wages. On the other hand, there are men who are told under such circumstances that they had better not lose such an opportunity to better themselves. In considering this side of the question it must be borne in mind that manufacturers have advanced wages pretty generally, oftentimes without a request, but frequently after a request, although unbacked by statements of better opportunities in other shops.

The men who are released by their old employers and are without employment, although they had claimed to have an offer at higher wages, go about looking for work. Recently a manufacturer of machine tools operating large shops received applications for work from a number of men from whom it was learned that all had just left the employ of a large and very prosperous corporation. The applications came individually, but struck by the coincidence the manufacturer requested the labor bureau to investigate. It was found that all of them had ineffectually asked for an increase of 75 cents a day to meet a supposititious offer from a city in the Middle West and were permitted to leave. They were not hired by the one to whom they applied for new positions, because he did not believe they could be trusted. No man can be censured for trying to get the best possible return for his labor, but he is not justified in resorting to misrepresentation. In such cases the labor bureau proves its value. The present experience is doubtless doing much to strengthen this comparatively young American institution.

Competitive Railroad Building.

It has been assumed that the statement recently made by E. H. Harriman concerning competitive railroad building pointed to a condition likely to have an unfavorable influence upon the earnings of certain railroads. Mr. Harriman's reference was doubtless to the new factors that may enter into the alignment of transcontinental transportation interests, factors that while affecting principally the so-called Harriman and Hill lines would have a bearing on the future of the Gould roads, the Rock Island, the Canadian Pacific and all systems that traverse the great West or the Northwest. Naturally if a period characterized by the tying together of railroads either by direct merger or under the community of interest principle is to be followed by one in which competition is to be dominant, there must be some adjustments. But there seems no occasion for alarm in anything thus far contemplated by way of extending existing lines into the territory of competitors. The emphasis has been put in recent years on the principle of co-operation in the management of railroad properties to such an extent as to create a peculiar sensitiveness to the suggestion of any return to the old way.

It is a matter of common knowledge that the Union Pacific, the Great Northern and the Chicago, Milwaukee & St. Paul roads have authorized but not yet issued additional stock to the total amount of $150,000,000, of which $100.000,000 is preferred stock of the Union Pacific authorized some months ago for unnamed acquisitions and extensions. While some of the reported plans for extensions to the Pacific Coast and in the Northwest have been denied, the contest of the Union Pacific and the Burlington over a line proposed by both along the north branch of the Platte River in Nebraska indicates more than paper projects, and it has been accepted for some time that the St. Paul road had on hand some proposed construction in the State of Washington that looked to its ultimate extension to the Pacific Coast.

Whatever the truth as to the immediate future course of particular enterprises such as those named, there need be no thought that the danger of overcrowding our Western and Northwestern country with railroads is imminent. There has not been a time in recent years when some thousands of miles, at times tens of thousands of miles, of new lines were not projected, with fair prospects in most cases of the enterprises being put through successfully. Yet in these years of prosperity the annual increase in main line mileage has been really small. No fear of a return of the disastrous railroad building fever of the eighties need be entertained when in the five years beginning with 1900 the increase in mileage is only about 600 miles more than in 1886 and 1887—21,531 miles for 1900-1904 against 8018 miles in 1886 and 12,876 miles in 1887. In railroad building as in steel works building the additions are to be very largely by way of extension to the properties of the important companies already in command of the situation. It is no time for another Nickel Plate line; neither is it a time for the putting through of any project that has not financial backing of the strongest description. The wreckage of the eighties and nineties has been well cleared away in the railroad field and the giants now in possession are not seeking any occasion for destructive encounters. The territory between the Red River Valley and the Pacific Coast, for example, is growing at a remarkable rate, faster, perhaps, than any other section of the country. That its resources should be developed by additional railroad lines, even lines competitive for a portion of their extent, is not a threatening outlook, but in the regular course of a progress that is not near its culmination.

Then, too, the country is not so completely convinced that consolidation is the solvent of the problems of competition as to regard competitive building in railroad or other lines as an evil. There is a mean between monopolization and destructive competition which may be hard to realize, but about which opinion will always concentrate as the condition to be sought. When it is stated that more than $600,000,000 of corporation bonds, in

large part railroad bonds, were sold in this country in the first nine months of this year alone it can be appreciated what a tremendous stake the great railroad interests have in the prevention of demoralization. As between the fear from concentration and engrossing of transportation and from the building of competitive lines the latter has far less of portent as the case stands to-day.

CORRESPONDENCE.

The Steel Scrap Situation.

To the Editor: Please permit us to call your attention to statements made in this week's issue of your valued publication which are really not based on actual facts and are likely to be misleading to your readers. In your New York market report, referring to heavy melting of steel scrap, you say:

> An effort is being made to counteract the tendeny to higher prices on steel scrap by exaggerating the importance of the embargo which has recently been placed by railroad companies on shipments to one or two works in eastern Pennsylvania. The statement, however, is made on good authority that this embargo has not been caused by excessive shipments of scrap, but of coal.

We happen to be one of the embargoed eastern Pennsylvania works and it is a positive fact that the embargo was caused by scrap and scrap alone. It is preposterous to claim that the embargo was superinduced by an accumulation of coal, as for weeks and weeks we have not had on our tracks more than a single day's supply and in consequence have been releasing cars loaded with coal immediately upon their arriving at our works; while, on the other hand, we have been simply deluged with scrap which has been shipped weeks and weeks in advance of deliveries requested on making purchase. We at the time the embargo was placed had here and *en route* between 250 and 300 cars loaded with scrap, these cars containing between 7500 and 8000 tons. Even at this writing we still have about 175 cars of scrap on our sidings and *en route*. The above does not indicate a shortage of scrap. Further comment is unnecessary.

WORTH BROS. COMPANY.

COATESVILLE, PA., November 18, 1905.

Recent Customs Decisions.

Galvanized Iron Sheets.

The Board of United States General Appraisers November 16 decided adversely a contention made by John D. Gluck & Son, New York, regarding the classification and value of galvanized iron sheets. The value of the sheets, according to the invoice accompanying the importation, exceeded 3 cents per pound. The collector concluded that he was justified in assessing duty at the rate of 45 per cent. ad valorem and 2-10 cent per pound additional. On the other hand, the importers maintained that the sheets are dutiable at the various specific rates according to gauge prescribed in paragraph 131 of the Dingley Tariff law, plus 2-10 cent per pound under paragraph 132 or under paragraph 135 according to value, plus the additional duty under paragraph 132. A further claim was that the merchandise should be assessed at 45 per cent. under the provision for manufacture of metal.

General Appraiser Fischer, in his decision written for the customs court, says that in a former decision of the tribunal it was decided that galvanized iron pipes of the kind imported by Gluck & Son and valued at over 3 cents per pound were for that reason excluded from the provisions of paragraph 131 and were relegated to the general provisions for articles of metal found in paragraph 193. It was further held in the same ruling that the articles being sheets or plates which had been galvanized they were subject to the additional duty prescribed by paragraph 132. In overruling the Gluck protest, Mr. Fischer says, in part:

> In the present case, although the point was not explicitly raised or directly referred to, it would appear from the trend of the questions asked by the counsel for the importers that what he had in mind was that the value of the sheets, for the purpose of determining whether or not they fall within the provisions of paragraph 131, is their value prior to galvanizing. It is not necessary, however, for us to pass on that question of law in this instance, for the testimony wholly failed to disclose any knowledge on the part of the witness, one of the importers, as to the value of the sheets before they were galvanized. He stated in answer to questions of his counsel that he had not the figures of the cost of the iron and that his attempt to obtain such information from the manufacturers from whom he bought the goods was a failure, they having refused to furnish him with any information on the subject. The protest is overruled and the decision of the Collector will stand.

Lead Ore.

C. G. Brewster, Laredo, Texas, has won a customs victory before the Board of Appraisers which is of interest. The merchandise consisted of ore from Mexico upon which duty was assessed at the rate of 1½ cents per pound for the lead said to have been contained in the ore, as shown by an assay made at the port of entry. It appeared from the evidence in the case that the ore arrived at Laredo from Mexico for shipment to Europe via Galveston. The collector at the frontier port erroneously refused to allow the consignee to make a warehouse and transportation entry, but required him to enter the goods for consumption. The Government representative thereupon assessed duty in accordance with the assay referred to above. In order not to delay shipment of the ore, the consignee paid the duties and exported the article to Europe as was originally intended. In sustaining the importer's protest, the board says: "On this state of facts we hold that the ore did not constitute an importation into the United States within the meaning of the customs laws imposing duty and that the duties paid in these cases was illegally exacted. The protests are sustained and the collector is directed to reliquidate the entries in accordance with this opinion."

Ferro Alloys.

The Board of General Appraisers is disposing of the ferrovanadium, ferrotungsten and ferrochrome cases which were placed on the suspended files of the customs tribunal when the litigation over their classification began two years ago. The report from Washington published in last week's issue of *The Iron Age*, to the effect that the Treasury Department is preparing to bring a "new" case, has aroused much interest among importers and domestic producers. In view of the fact that the United States Circuit Court of Appeals last March decided the test case in favor of the importers and held these alloys to be dutiable at only $4 per ton, instead of at 20 per cent. ad valorem, as claimed by the Government, the Board of Appraisers will clear the files of all protests hung up in the late test case. The Chrome Steel Works and J. W. Hampton, Jr., & Co., New York, have just had protests decided in their favor in harmony with the conclusions reached by the court. As soon as the authorities at New York are notified that a new test case has been instituted all other protests raising the same question will be put on the Board's suspended files. In the meantime the Treasury Department is making refunds to importers as fast as the board decides the old protests.

On account of the rapid growth of its business in Pennsylvania the Independent Pneumatic Tool Company, Chicago, has opened an office at 207 Germania Bank Building, Pittsburgh, where a complete line of its piston air drills, reversible flue rolling, reaming, tapping and wood boring machines and pneumatic riveting, chipping, calking and beading hammers will be carried. Richard D. Hurley has been appointed manager of the office. James C. Dennis, well known in the pneumatic tool trade, has entered the company's employ in the capacity of salesman and will travel out of the New York office.

A new type of steel railroad postal cars is being tried by the Santa Fe. The cars are heavy, weighing about 150,000 pounds. They are much heavier than a Pullman sleeper and are said to be capable of running just as smoothly. The underframing is of pressed steel and the sides and floor are of plate steel. The steel floor is covered with cement fill and a wooden flooring.

Mexican Railroad and Trade Notes.

Domestic Iron and Steel Manufacture.

DURANGO, November 15, 1905.—The few domestic plants engaged in iron and steel making appear to be fairly prosperous. Under the stimulus of the increased duty on foreign manufactured iron and steel products the principal works of modern construction—the plant at Monterey—is making an energetic effort to supply the domestic demand for such classes of products as the management is able to turn out. The protection afforded by the tariff seems to be gradually evolving a domestic iron and steel making industry, which is, however, as yet of limited capacity, and by no means adequate to the country's increasing needs. Despite the difficulties involved in the problem of securing a sufficient number of competent workmen for an industry so exotic, and the no less ones relating to fuel and the immense handicap incidental to tropical climatic conditions, the plant at Monterey gives promise of justifying the expectations of its promoters. When the available native labor has been properly trained and the workers in the various departments have gained the confidence which comes only with experience, better results will no doubt be obtained, although the severity of the heat in the particular locality where the works are situated must always be a discouraging factor to the workmen and act as a check on productive capacity. How the home industry looks to the "intelligent observer" here in Mexico is reflected in a paragraph which appeared a few days ago in the press of the capital, as follows:

> Gradually and surely Mexico is building up an iron and steel industry of considerable proportions, and thereby shutting out certain foreign products which could not formerly be stopped from coming in. The iron and steel works of Monterey, as an instance, now make steel beams for $100 per ton, against a similar imported article that costs $150. Commercial iron costing $220 per ton to import is made there and is in demand at $140. Imported mining steel costs $400, and the Monterey plant supplies the same article, equal in all respects, at $250 per ton, and so on down the list of iron and steel required in Mexico.

Against this optimistic picture of present success and future promise must be set the fact that the plant of the National Mexican Iron & Steel Company, situated near Durango, was shut down some months ago, and has not yet resumed operations. There has been much speculation and many rumors have been in circulation as to the cause of the stoppage. At first it was said that the plant had been bought by the Monterey Iron & Steel Company, who would dismantle it; then the name of the buyers was given as the Mexican Central Railway Company, and, finally, the report was spread that the new owners would be a syndicate of United States capitalists. This last rumor was circulated also by the press of Monterey in the form of a dispatch which is said to have originated in Pittsburgh. The actual condition of affairs is a riddle locally. The plant is an old one; the principal asset is the large iron ore deposit near the works.

Railroad Concessions and Construction.

A concession has been obtained by Luis G. de la Torre from the State Government of Vera Cruz for the construction of a line of railroad from San Andres Tuxtla to to San Juan, Michapan. A subsidy of $25,000 has been granted by the State in support of the enterprise. San Andres Tuxtla is the center of the famous tobacco growing country of Vera Cruz.

There is a movement among the residents of the town of Rodriguez, on the San Luis division of the Mexican Central Railway, to raise funds with which to build a short line of railroad between that station and the town of Guerrero, on the Panuco River.

Railroad building is active and promises to continue so for a long time. Not only the principal systems but the smaller ones, and the mining roads also, are extending their lines to meet the demands of present and prospective traffic.

Application has been made to the Government of the State of Mexico by Senor Telesforo Garcia, a Spanish capitalist, for a concession to construct a railroad from Toluca, the capital, to the Valle de Bravo district, in the State of Michoacan.

The Kansas City, Mexico & Orient Railway Company is showing great activity in the construction of its line in Chihuahua. Agents have been scouring the States of Durango and Coahuila within the last few weeks for track laborers. Several large bodies of men have been recruited in Durango for this work recently.

Industrial Notes.

The much discussed question of the relative merits of locomotives of United States manufacture and those of European make is likely to be warmly debated in Mexico by the representatives of manufacturers of both types who are about to engage in a contest for orders which are to be placed by some of the railroad companies for locomotives adapted to the steep mountain grades. A Mexican journal says:

> Word has been received that a number of Northern locomotive builders are making arrangements to send representatives into the Republic to endeavor to sell several of their new powerful hill climbing engines to the railroads here. The manufacturers of German made engines who have representatives in the Republic, will also enter the competition, and it seems with prospects of success, as it is claimed that they can make a locomotive the equal of any made in the United States for considerably less money.

The Tabasco Land & Development Company, owner of the plantation known as the Oaxaquena, near the town of Santa Lucrecia, Vera Cruz, intends to erect a sugar refinery, the plant to be of 1000 tons daily capacity at first and to increase to 3000 tons later.

The Consolidated Railway Construction Company, claiming to have a capital of $10,000,000, gold, and with which the name of H. L. Perkins is connected, is reported as having recently been formed, with the object of "taking over the assets of several large construction companies, both in the United States and Mexico, and completing their contracts." The company will, it is said, have offices in various cities in the United States and also an office in the City of Mexico.

Another new construction company, with the title the Federal Engineering & Construction Company, capitalized at $500,000, has been organized under the laws of Mexico. The officers are Epes Randolph, president; A. H. McKay of Santa Barbara, vice-president; L. C. Balch, secretary; M. T. Thompson, general manager.

A new steamship company has been formed by Manuel Ceballos of Progreso, Yucatan, and George R. Christ of Mobile, Ala., under the style of the Yucatan Steamship Company, for the purpose of establishing a regular line of fast freight boats between the two seaports named.

President Diaz and a distinguished company paid a visit of inspection to the works of the Mexican Car & Foundry Company, situated near the capital, a few days ago. The visitors were the guests of Isaac M. Hutchison, the president of the company, and made the trip in a special train. The works are now in operation and orders for rolling stock are coming in. Among those recently received was one from the San Rafael & Atlaxco Railway Company for 50 freight cars, and an order for a baggage car from the Chihuahua & Pacific Railway Company.

H. L. Hull of St. Louis, Mo., has applied to the Government for a concession to establish, near the city of Mexico, a plant for the manufacture of locomotives, boilers, engines and automobiles. In the erection and equipment of the works the persons interested in the project are prepared to invest a capital of $1,000,000, according to the statement of the petitioner, who asks for the usual franchises.

The demand for iron and steel for construction purposes and also for mining operations is large and continuous, and the domestic works are kept busy. The activity in building, in the capital especially, is one of the chief causes of the increase in sales of structural steel, a great deal of that material being used in the modern buildings now being erected.

Application for a concession to use the waters of the San Pedro River for motive power purposes has been made by Salvador Gambino of Santa Cruz de Rosales, Chihuahua; Joaquin Marti of Los Herreros, Nuevo Leon, wants an irrigation concession, and asks for leave to use water from the rivers El Colorado and Andada de los Huisaches; Canuto Reyes has been granted a concession to erect hydraulic works and to use 300 liters of water per second from the Atoyac River, district of Galeana,

State of Guerrero; an irrigation concession has been asked for by Ignacio Alba, who desires to utilize the waters of the Lobo arroyo in the State of Nuevo Leon. Max Muller would use the waters of the Yaqui River, Sonora, for irrigation purposes, and Juan D. Alegria and an associate purpose engaging in manufacturing operations in the State of Nuevo Leon, near Sabinas Hidalgo, and petition for the right to use enough water from the Sabinas River to supply motive power; S. Pearson & Son, Limited, who are engaged in prospecting for petroleum in the State of Tabasco, ask for a concession to use water from Lake Acumba, municipality of Macuspana, in that State, for motive power. J. J. D.

The Citizens' Industrial Association.

The third annual convention of the Citizens' Industrial Association of America was held at St. Louis, Mo., November 15 to 17. There were upward of 400 delegates in attendance, every one of whom heartily indorsed the principles outlined by President C. W. Post of Battle Creek, Mich., on which the association will bid for public support. The policy outlined is as follows: "Strikes and lockouts are not to be permitted, as they are contrary to the interests of the community. No closed shops will be supported, for such are opposed to law and to the liberty of the people. No interference with any man who wants to work. Arbitration through Citizens' Association offers a better way than strikes and lockouts."

The convention opened Wednesday morning with an address by J. W. Van Cleave of the St. Louis organization. Mayor Rolla Wells welcomed the delegates to St. Louis and President Post followed with his annual address. The programme included the reading of numerous papers, as follows:

"The Open Shop and the Printer," F. C. Nunemacher, president Employers' Association of Louisville.

"The Rise and Progress of Labor Unions," Judge Jesse Holdom of Chicago.

"Co-operation and Profit Sharing," N. O. Nelson, Citizens' Industrial Association of St. Louis.

"The Employees' View of the Industrial Question," R. D. Tomlinson, national president American Association of Stationary Engineers.

"Some Broader Aspects of the Labor Problem," Herbert Myrick, editor *American Agriculturist*.

"Peaceful Picketing," T. J. Mahoney, counsel of the Business Men's Association, Omaha, Neb.

"Antiboycott Litigation and Legislation," Daniel Davenport, American Antiboycott Association.

"How Portland Built an 'Open Shop' Exposition," W. C. Francis, president Citizens' Alliance of Portland, Ore.

"The Necessity for National Co-operation," Herbert George, president Citizens' Alliance of San Francisco, Cal.

"The Employment Bureau," Ferdinand Schwedtman, secretary Citizens' Industrial Association of St. Louis.

The address of N. O. Nelson of the N. O. Nelson Mfg. Company, St. Louis, Mo., on "Co-operation and Profit Sharing," aroused great interest and brought on a prolonged discussion of socialistic innovations in business. He said that he has conducted the business on a profit sharing plan since 1886, and seven years ago built the city of Le Claire, Ill., on a 125-acre tract. He said that it had never experienced a strike, nor has any one of the 500 workers ever been arrested. Continuing, he said: "A business man must have ability, but he may just as well have some ideals, some culture, some outlet for the good will he entertains toward humanity. Why not let a business man invest his money in some good houses for the men next down the ladder to live in? There is nothing to wealth but figures and the cares on a rich man's mind. I started giving my business over to my men because of a great railroad strike. Such affairs are absurd, silly and brutal. They are like the dregs of an antiquated civilization instead of the flowers of a civilization like ours. We ran the business together for years. Then I decided the city was not a good place for workers to live in, whether rich or poor. I do not think much more of the boulevard than of the slums. Both are unfortunate in their results, especially to the second and third generations. My men agreed with me and we started our town."

At the closing session resolutions were passed reaffirming the principles of the association, and in the resolutions adopted organizations of capital and labor were dealt with as follows:

Whereas, The Citizens' Industrial Association of America looks with approval upon the investigation and prosecution by Federal and State authorities of certain great trusts of capital which seek by monopoly and illegal arrangements and contracts to stifle competition, dominate industry and exact unfair and exorbitant prices from the public; and

Whereas, This association firmly believes that certain associations of organized labor, in their methods and practices and in their openly avowed objects and purposes, are seeking to establish and maintain by unlawful contracts, by coercion and intimidation and by organized oppression, a labor trust or monopoly of the labor market; be it

Resolved, That this association hereby expresses its belief that such organizations of labor as in their conduct and purposes are manifestly labor trusts should be investigated by the Government authorities, both State and national, and that so far as said organizations are found to be illegal they should be vigorously prosecuted in like manner as are trusts of capital, and without fear or discrimination.

Officers were elected as follows: Charles W. Post, Battle Creek, Mich., president; J. W. Van Cleave, St. Louis, Mo., first vice-president; F. C. Nunemacher, Louisville, Ky., second vice-president; A. C. Marshall, Dayton, Ohio, third vice-president; James A. Emery, New York, secretary; A. C. Rosencranz, Evansville, Ind., treasurer; Executive Committee to serve two years, Frederick W. Job, Chicago; W. C. Shepherd, Wilkes-Barre, Pa.; David M. Parry, Indianapolis, Ind.; C. H. Smith, Aurora, Ill.; Charles F. Walsh, Cincinnati, Ohio.

The association's standing committee on public affairs, whose duty it will be to interest public gatherings in the principle of the open shop, was made up as follows: Marshall Cushing, James T. Hoile, [illegible] C. Hunter, James A. Emery, John Macintyre and Daniel Davenport, New York City; O. P. Briggs; Robert Wuest, Charles F. Waltz, Cincinnati; John M. Glenn, Chicago; A. C. Marshall, Dayton, Ohio; Frederick E. Matson, Indianapolis; Albion P. Pease, Boston; Edward Tingle, Philadelphia; James L. Parsons, Washington; Frederick W. Sivyer, Milwaukee; Joseph H. Beek, St. Paul; John Sherman, Des Moines; Ferd. C. Schwedtman, St. Louis; T. J. Mahoney, Omaha; H. D. Morton, San Francisco; F. W. Job, Chicago; E. A. Quarles, Louisville; R. E. M. Strickland, Spokane, Wash.; N. F. Thompson, Chattanooga; F. F. Arnim, Houston, Texas; W. C. Francis, Portland, Ore.; Robert T. Young, Mobile, Ala. The next meeting will be held at Chicago.

Our Present Blast Furnace Capacity.

The American Iron and Steel Association, Philadelphia, will publish in its *Bulletin* under date of December 1 a statement of present blast furnace capacity which will be received with interest by the iron trade. According to this statement the approximate annual capacity of the blast furnaces of the United States in November, 1905, was 28,635,000 gross tons, omitting not only recently abandoned or dismantled furnaces, but also all idle since June 1, 1904. The number of furnaces now in course of construction is 13 coke, 2 anthracite and coke and 1 charcoal, or 16 in all, with a total estimated capacity of 1,830,000 tons. Of these furnaces three stacks, with an annual capacity of 315,000 tons, will probably be ready for blast in January, 1906; two stacks, with an annual capacity of 240,000 tons, will be ready in February; two stacks, with an annual capacity of 215,000 tons, will be ready in March; one stack, with an annual capacity of 145,000 tons, will be ready in April; three stacks, with an annual capacity of 450,000 tons, will be ready in June, and five stacks, with an annual capacity of 465,000 tons, will be ready in the summer or fall of 1906.

As the production of pig iron in this country in October was at the rate of almost 25,000,000 tons annually it will be seen that over 87 per cent. of the available furnace capacity of the country on November 1 was then in operation.

NEWS OF THE WORKS.

Iron and Steel.

The blast furnace of the Detroit Iron & Steel Company, Detroit, Mich., will go out for relining about the close of November. It has had a long campaign, having blown in the early part of 1904, and there has been no interruption except for a few days. The distributing device designed by the Garrett-Cromwell Engineering Company of Cleveland and the electric operation of the bells have proved very successful.

The Reliance Edge Tool Company has been organized at Youngstown, Ohio, with a capital of $75,000, and intends to build a plant in that city for the manufacture of crucible tool steels and certain lines of tools. Charles McCarthy will be general manager.

The McCrory Wire & Nail Company has applied for a charter and will operate a wire and wire nail mill at Ellwood City, Pa. The incorporators are John McCrory, A. M. Jones and James McCrory.

The Pittsburgh Cold Rolled Steel Company, Pittsburgh, Pa., has made application for a charter and has secured control of the business of the company of similar name in that city. The present business is a small one, and it is the purpose of the new company to increase the capital stock and enlarge the plant. It will make cold rolled strip steel for all purposes.

It is reported that the Pennsylvania Steel Company is negotiating for more than three blocks of property valued at from $150,000 to $200,000 at Steelton, Pa. The property is said to be wanted for the establishment of large additions to the company's plant, to include six open hearth furnaces, new I-beam mill and a bar mill.

The Republic Iron & Steel Company is dismantling its plant at Sharon, Pa., and removing the equipment to its mills at Youngstown, Ohio. The plant has not been operated for about five years.

Rebecca Furnace of the Kittanning Iron & Steel Mfg. Company, at Kittanning, Pa., was started last week after being idle for some time for repairs. This concern has let contracts for the building of a new blast furnace to be erected beside the present one, and the old stack will be operated until the new one is finished, when it will be torn down. The muck bar mill of the company is idle at present.

Steubenville Furnace, at Steubenville, Ohio, formerly operated by the National Tube Company, but recently taken over by the Carnegie Steel Company, was blown in on Friday, November 17. The furnace will make about 300 tons a day.

The Ft. Wayne Rolling Mill Company, Ft. Wayne, Ind., has been incorporated with $35,000 capital stock. The directors are Edward F. Yarnelle, B. A. Hegeman, Jr., H. E. Frazier, Robert Milliard and W. J. Vesey.

General Machinery.

The F. B. McCrosky Mfg. Company, Meadville, Pa., has recently installed a large new turret lathe and also a punch press. Its business has increased rapidly under present management, and it now has orders on its books for at least a three months' run. The stockholders of the company are considering the advisability of raising sufficient funds to pay off the liabilities of the old company and also to considerably increase the plant.

The Delaware, Lackawanna & Western Railroad is to reopen its repair shops at Dover, N. J. No new machinery will be required.

The Helwig Mfg. Company, St. Paul, Minn., is now equipped for doing general drop forging for the trade.

The Youngstown Foundry & Machine Company, Youngstown, Ohio, has received some large contracts for machinery for the new Bessemer steel plant being built by the Youngstown Sheet & Tube Company, Youngstown, Ohio, and also for the new blast furnace being built by the Republic Iron & Steel Company, Haselton, Ohio. It expects to secure other large contracts and is operating its plant to full capacity.

The Cordesman-Rechtin Machine Company, capital $75,000, has been incorporated by Henrietta Cordesman, Louis E. and Leo F. Rechtin, J. T. Rhyno and James Rogerson. The new company will take over the business of the Cordesman Machine Company, now located on Butler street, Cincinnati, and will manufacture wood working machinery.

The Poughkeepsie Engine Company, recently incorporated with a capital stock of $350,000, has purchased the plant of the New Birdsall Company, Auburn, N. Y., and will move it to Poughkeepsie, N. Y., within the next 30 days. The company will continue the manufacture of engines, saw mills and threshing machinery, formerly manufactured by the Birdsall Company. Edgar B. Mosher, secretary of the Birdsall Company, is a director in the new company.

The Monessen Foundry & Machine Company, Monessen, Pa., is erecting a new machine shop 80 x 130 feet and an addition to the foundry 50 x 72 feet. Two 10-ton elevators will be installed.

Power Plant Equipment.

The Pullman Company, Chicago, is just completing a new boiler house at Pullman, Ill., having a normal capacity of 3200 horse-power and has also made renewal of its boiler plant in the Pullman office building.

The controlling interest in the Western Gas Engine Company, Los Angeles, Cal., formerly held by E. A. Guthrie, has been purchased by W. E. McVay, and the vacancy on the Board of Directors created by Mr. Guthrie's resignation is filled by Mr. McVay. W. H. Frost becomes president and general manager and R. B. Sumner the secretary.

The City Engineer of Milwaukee is taking initial steps looking to the purchase and installation of a new triple expansion pumping engine to relieve the service of the two old "beam engines" at the North Point pumping station. These two engines have been in service for over 30 years.

The Allis-Chalmers Company, Milwaukee, recently received contracts for a vertical triple expansion crank and fly wheel pumping engine with a capacity of 6,000,000 gallons for the Newport water works, Newport, R. I.; also horizontal, compound, condensing pumping engine with a capacity of 1,500,000 gallons for the Arlington water works station at Boston, Mass.

J. T. White, Freeport, Ill., is in the market for second-hand boilers and bath apparatus.

The contract for changing the motive power of one of the London underground railroads from steam to electricity has been awarded to the General Electric Company, Schenectady, N. Y., which will execute the contract through the British Thomson-Houston Company. It is understood that the contract calls for the motor equipment for 20 trains of six cars each.

The Whitney Company, Salisbury, N. C., is developing a 46,000 horse-power hydraulic plant on the Yadkin River, at Whitney, N. C. The mechanical equipment will consist of 8000 kw. generators and the necessary electrical auxiliaries, to be furnished by the General Electric Company, Schenectady, N. Y. The water wheel equipment has been purchased from the S. Morgan Smith Company, York, Pa.

The Prescott Steam Pump Company, Milwaukee, Wis., recently obtained a contract from the owners of the El Cobra copper mine, near Santiago, Cuba, for the largest pumping machine ever sent to that island. The outfit is now being manufactured at the West Allis plant of the Prescott Company. On account of the acids in the water of the mine where it is to be used the pump will be built largely of bronze, and will differ from the ordinary pump in that the water end and all parts that will be touched by water will be of bronze, making the cost about five times greater than the ordinary cost of steel and other material commonly used. The water is strongly charged with sulphuric acid and sulphate of copper and is at a temperature of 90 degrees.

The American District Steam Heating Company, manufacturer of apparatus for district heat supply stations, has let contracts for the construction of a large addition to its plant in North Tonawanda, N. Y., and it is stated that eventually the Lockport plant of the company and its main office will be moved to North Tonawanda.

The Fidelity Trust Company, Milwaukee, has been appointed receiver for the Brown Corliss Engine Company, Corliss, Wis. The assets are stated to be $799,500 and liabilities $374,872.

Bridges and Buildings.

Contracts for the new bascule bridge to be erected at Dearborn street and the Chicago River, Chicago, have been awarded as follows: Substructure, Great Lakes Dredging & Dock Company, $142,253; superstructure, Jackson & Corbett Bridge & Iron Company, $145,335.

Grainger & Co., Louisville, Ky., have been awarded contract for the structural iron work on the Paul Jones Building, which is to be erected in that city. The contract will exceed $100,000.

The Missouri-Kansas Transit Company, Kansas City, Mo., will build a bridge of two spans, 400 feet each, over the Kansas River and will also construct a steel viaduct with concrete abutments, 6700 feet, and a concrete tunnel 3700 feet. The total cost of this construction will amount to $4,000,000. R. C. Barnett, Kansas City, is making the plans.

Foundries.

The Safety Meter Lock Company, Columbus, Ohio, has purchased the large foundry formerly owned by the Simpson Iron Company and has re-equipped the building and placed it in operation. The company does a gray iron and brass casting business and manufactures sealing and locking devices for all kinds of gas and water meters, stop cocks and pipe lines. Heretofore the company has had its specialties made by contract.

C. Upham Elv, 573 Dixwell avenue, New Haven, Conn., is erecting a foundry building 45 x 85 feet with wing 18 x 72 feet of heavy mill construction.

The Fairbanks Company, Springfield, Ohio, manufacturer of piano plates and piano hardware, is adding about 15,000 square feet of floor space to its foundry capacity. All equipment necessary for this additional space has been purchased and will be installed as soon as the building is completed.

The Bonham Foundry & Wood Works, Bonham, Texas, which was recently incorporated, is installing a small foundry in connection with its wood works.

Fires.

The plant of the Steelton Electric Light Company, Steelton, Pa., was destroyed by fire November 18, the loss amounting to about $60,000.

The plant of the Riverside Bridge Company, Martins Ferry, Ohio, was recently burned. The damage is said to be close to $200,000.

The forging plant of Joseph Dyson & Sons, Cleveland, Ohio, was recently destroyed by fire. The loss will be considerably over $10,000.

The wire weaving plant of the Gilbert & Bennett Mfg. Company at Georgetown, Conn., was damaged $50,000 by fire November 16.

The Western Machine Company's plant at Albia, Iowa, was recently burned, with a loss of about $100,000.

The Edge Tool Works, Gas City, Ind., were destroyed by fire November 15, resulting in $25,000 loss, partly covered by insurance. The factory had been in operation several years making wood working tools and grass knives. The owner, Chas. Maliphant, is traveling in Europe.

Fire destroyed J. B. Baker & Sons' main plant at Kendallville, Ind., November 16. The firm manufactures hardware specialties. The power house and foundry were saved. The loss was estimated at $25,000; insurance $7000. The plant was being worked to its capacity with holiday orders.

Hardware.

The enameled ware business of the Geuder & Paeschke Mfg. Company, Milwaukee, Wis., has grown very much of late months, and the company has commenced the erection of an addition to its plant 80 x 210 feet.

Wellman Mfg. Company, Rochester, N. Y., has been incorporated with a capital stock of $40,000 for the manufacture of a line of hardware specialties, including automatic ventilating sash locks, self locking adjusters for railway coach and wicket windows, towel and paper holders, chair and pew hat holders, &c. Steel stamping work will also be done to order. Samuel G. Wellman is president of the company; David D. Wellman, vice-president, and H. C. Farnham, secretary and general superintendent.

The Syracuse Chilled Plow Company, Syracuse, N. Y., has recently completed an extension to its works. The addition is a four-story and basement brick and stone building 80 x 120 feet, and is devoted to the wood barrow department of the business. The latest machinery and equipment have been installed in the new building.

Luther E. Smith, Shelburne Falls, Mass., is building a new factory 30 x 40 feet with cement walls, and will manufacture cutlery and various patented articles, including a machine for affixing postage stamps and a cross cut saw handle. His lines of cutlery will be butchers' knives and surgical instruments. A part of the new building is completed and the remainder will be erected later.

The Green Corn Husker Company, Hoopeston, Ill., has been incorporated with a capital of $25,000. The company will manufacture a machine for use in canning factories in the husking of green corn. It is claimed that the machine will do the work of 30 or 40 men. The incorporators of the company are Jay Briggs, John Kofel and Charles S. Crary.

Jamestown File Works, Jamestown, N. Y., has recently been organized to manufacture the Rex brand of files and rasps. David D. Lewis, who has had considerable experience in file manufacture, is president of the company; R. M. Taylor, secretary, and Wm. Hjorth, treasurer. The company will operate in an entirely new and up to date plant. It is expected to begin manufacturing about December 20 and to be in a position to fill orders by January 1.

The American Cylinder Brace & Tool Mfg. Company, West Palm Beach, Fla., has been formed to manufacture what is called a cylinder brace, the invention of James Holley, a local contractor and builder, who is one of the directors of the company. In this tool the bits are accommodated in a cylinder just above the socket of the brace, so arranged that any one of the bits can be dropped down and secured in place while the other bits remain in the cylinder entirely out of the way.

Eldred Cutlery Company, Eldred, Pa., reports a very satisfactory demand for pocket cutlery. This company was organized and incorporated in March last, when it purchased the building formerly occupied by C. Platt's Sons Cutlery Company.

The Imbler Fence Company has been incorporated at Alexandria, Ind., with $10,000 capital stock, by John Imbler, John Imbler, Jr., and George Imbler.

Evart Tool Company, Limited, Evart, Mich., manufacturer of lumbering tools, has for some time past felt the necessity of additional room, as its factory had become congested, and as contiguous property was not obtainable the company decided to buy seven lots on the Muskegon River west of Main street bridge. The new mill is now ready for operation. It is well located for the purpose, as timber may be taken from the river as well as from the cars, a side track of the Pere Marquette Railroad reaching the premises. The change will give the space in the old factory which was occupied by the saw mill for finishing and work room, which is much needed. The company is building a large addition to its blacksmith shop to make room for additional fires. An addition has also been made to the polishing room, and the interior of the factory has been arranged more conveniently than formerly with a view to labor saving. The stockholders, anticipating the requirements of the works, have secured large holdings of timber in the vicinity of Evart and, we are advised, have an abundance of stock from which the rock elm and maple handles are made to supply the factory for years.

Miscellaneous.

The Ideal Furniture Mfg. Company, Washington, Ind., will erect a factory building to cost $15,000.

The Youngstown Car Mfg. Company, which has a modern plant at Youngstown, Ohio, for the manufacture of wooden cars, is now equipping its plant for repairing standard gauge steel cars. The company will not engage in the manufacture of steel cars, but will confine itself to repairing them. Large shops will be erected and will be equipped with modern machinery.

The Paris Gas & Electric Company, Paris, Ill., has been reorganized and additional bonds to the amount of $20,000 have been issued to enable the company to make improvements to its plant. Wm. J. Hunter is president.

The Manistee Iron Works Company, Manistee, Mich., has sent a crew of seven men to Winsford, England, to erect a triple effect vacuum salt plant. The plant was built at Manistee and consisted of 21 carloads of vacuum pan parts and pumps. The same company has just completed erecting a vacuum salt plant for the International Salt Company of Ludlowville, N. Y.

Stoker Brothers, Saginaw, Mich., who recently went to Chattanooga, Tenn., to establish a logging tool manufactory, have commenced the erection of a plant in the latter named city. Work is progressing rapidly on one building and two other large ones will be erected shortly. Equipment for the plant is now en route from the old plant at Saginaw.

The Welded Steel Barrel Company, Detroit, Mich., has reorganized under a foreclosure purchase and has reincorporated with a capital stock of $100,000. The stockholders are Joseph H. Berry, Wm. G. Smith and William Christian.

According to the figures of the appraisers, the total value of the real assets of the National Electric Company, bankrupt, of Milwaukee, is $1,033,517.46, after a depreciation of all items amounting to $322,951.36, had been charged off. With the report of the appraisers John I. Beggs, trustee of the company, made a report from the time he took charge of the affair until September 30, wherein it is shown that during his management of less than two months the concern earned $52,968 and reduced its liabilities by $85,256. The total valuation of the company, including its patent rights, insurance policies it holds on the lives of Frank G. Bigelow and H. W. Watkins, former officers, and all the accounts and bills receivable, is $5,020,643.63. The liabilities of the concern, according to the statement, are $4,737,038.06.

The Gravity Car Coupler Company, Springfield, Ill., is a new company incorporated with a capital stock of $10,000, to manufacture machinery and implements. The incorporators are John I. and Thomas I. Rinaker of Carlinville, Ill., and John I. Rinaker of Springfield, Ill.

An order was recently closed through the Pittsburgh office of the Otis Elevator Company for a single installation of 44 freight elevators in the new building of the Pittsburgh Terminal Warehouse Company, Pittsburgh, Pa. These elevators have a lifting capacity of 6000 pounds and a car travel of about 100 feet.

The Ajax Metal Company, Philadelphia, Pa., manufacturer of Ajax plastic bronze for bearings of every description, has purchased property adjoining its plant and intends to erect new buildings on it in the early spring. It is the intention to prepare the plans immediately. The company is very much in need of larger facilities to take care of its increasing business.

L. E. Cochran, president of the Youngstown Iron & Steel Roofing Company, Youngstown, Ohio, and others have incorporated the Youngstown Pressed Steel Company.

The Gregory Electric Company, Chicago, is building an addition to its factory at Sixteenth and Lincoln streets. The improvement is one story 50 x 120 feet. No additional equipment will be required.

The American Shipbuilding Company, Cleveland, Ohio, has received orders for two more freight steamers. The first order was placed by W. A. & A. H. Hawgood, Cleveland, and is for a steamer 545 feet over all, 525 feet keel, 55 feet beam and 31 feet deep. It is to be equipped with triple expansion engines and two Scotch boilers 14 feet 6 inches by 11 feet 6 inches. The second order was given by Henry A. Hawgood and his son, H. B. Hawgood, for a steamer 552 feet over all, 532 feet keel, 56 feet beam and 31 feet deep. It is to be equipped with triple expansion engines. With these two orders the American Shipbuilding Company now has orders for 20 vessels to be delivered in 1906.

The Watertown Steel & Iron Company, Watertown, Wis., has incorporated with a capital stock of $20,000 to buy and sell iron and steel. Incorporators are A. F. Baumann, Fred. A. Hoffman, Ferdinand Schmutzler and J. F. Dornfeld.

The John Wood Mfg. Company, Conshohocken, Pa., has

begun the erection of a one-story brick galvanizing shop 90 x 90 feet, to replace one of its present buildings. No additional machinery will be required.

The Hadley Mills Company, South Hadley Mills, Mass., contemplates the installation of a gas plant for use in the mills and for general illuminating purposes. The matter has not, however, been fully decided.

The Chadwick-Rogstad Company, 189 Montague street, Brooklyn, N. Y., has incorporated to do general construction and engineering work. Stanley H. Chadwick is president; O. Rogstad secretary and treasurer, and William H. Raad vice-president, who with O. N. Brown and W. T. Wetmore constitute the Board of Directors.

The Chase Mfg. Company, Columbus, Ohio, now has plans under consideration for the enlargement of its plant. It is expected that the work of erection will begin at an early date. It is understood that special attention will be given to office utilities and that the new plant will be an up to date building.

The Utah Fuel Company, Sunnyside, Utah, has reconstructed its plant, which was recently damaged by fire. The machinery was not injured.

The Buffalo Gas Generator & Mfg. Company has been incorporated at Buffalo, N. Y., with a capital stock of $5000. The directors are William S. Kellogg, Hugh E. Rourke, Herbert W. Huntington, Frank W. Johnson, John R. Schrader, Leo M. Chenley and Gurdon R. Allyn.

The McKerhaen Automatic Car Coupler Company, Wilmerding, Pa., has applied for a charter to manufacture a car coupler invented by Charles A. McKerhaen, a molder employed in the brass foundry of the Westinghouse Air Brake Company, at Wilmerding, Pa.

The T. B. Laycock Mfg. Company, Indianapolis, Ind., has begun the erection of its new plant at Brookside Park, Twentieth and Gale streets. The buildings alone will cost $80,000, according to the permit given by the city. The buildings will be of brick and a novel feature is that the brick will be made of clay found on the 25-acre site for the new factory. The present large plant at Tenth street and the canal will be converted into a power plant for the accommodation of smaller manufacturing concerns. The plant when enlarged according to plans will have 382,635 square feet of floor space. The power will be electricity. The T. B. Laycock Mfg. Company makes brass and iron beds, springs, cribs and cradles.

F. A. Thomas & Co., Newark, N. J., the new owners of the King iron mines at Ledgewood, N. J., propose to put that property in working order as soon as possible. The company has spent about $10,000 for machinery equipment for operating the mine and later on will be in the market for an ore separator. The new owners have made a contract with the Bethlehem Steel Corporation, South Bethlehem, Pa., to take its entire output of iron ore.

La Belle Iron Works Options.

Edwin N. Ohl of Pittsburgh, who is getting options on the stock of La Belle Iron Works at Steubenville, Ohio, on the basis of $200 a share, is understood to have at the present time about 90 per cent. of the stock under option, and there seems to be no doubt but what the deal will be put through. It is expected that within a few days Mr. Ohl will put experts to work making an appraisement of the plant and inventory. There has been a good deal of guessing as to who the parties are that are back of Mr. Ohl in the deal to acquire the La Belle Works, but we can state that no domestic concern is connected with the deal. Mr. Ohl is understood to represent foreign capital, which is buying the La Belle Iron Works as an investment, the belief being that at the price of $14,000,000, together with the assuming $2,500,000 in bonds, or a total of $16,500,000, the La Belle plant is cheap at this price and will prove an excellent investment. It is likely that if the foreign syndicate secures possession of the La Belle plant the open hearth department, which now contains nine 50-ton furnaces, will be enlarged by the addition of three more similar furnaces, giving the La Belle plant an output of about 1200 tons of open hearth steel a day. This would take the entire product of the two blast furnaces, about 800 tons a day, and balance the plant. As it is now the La Belle concern usually has about 300 tons of basic iron a day to sell in the open market. The plant is splendidly equipped for the manufacture of sheet and tin bars and it is possible that plans of the foreign syndicate contemplate the shipment of sheet and tin bars to foreign sheet and tin mills.

OBITUARY.

ALBERT J. PITKIN.

Albert J. Pitkin, president of the American Locomotive Company, died at his home in New York City November 16, 1905, after an illness of several months. The serious character of his trouble was not appreciated even among Mr. Pitkin's closest friends, and the news of his death was a general surprise. At the head of the greatest industrial organization of its kind, Mr. Pitkin's leadership extended to circles even beyond national bounds. He was of that type found now more frequently than ever in the highest places in large consolidations—the man of operating experience who started in the humblest place in the shop or mill and traveled the whole length of the road to the position of greatest authority. From the days of his apprenticeship Mr. Pitkin was associated with the locomotive. He realized how much its development meant for human welfare and set out to improve it to the utmost. The high position the Schenectady Locomotive Works attained among industrial establishments was due largely to his efforts. As the managing head of these works his influence upon industrial affairs reached

ALBERT J. PITKIN.

quite beyond the locomotive. He originated many improvements in motive power methods and management. In arguing for the best development of the locomotive he often said in substance: The locomotive earns every dollar brought into the treasuries of the railroads; it therefore merits the best attention railroad men can give it.

Mr. Pitkin was 51 years old. He was born in Northampton, Summit County, Ohio, the son of a Presbyterian home missionary. At 17 he began his apprenticeship in the stationary engine works of the Webster, Camp & Lane Machine Company at Akron, Ohio. He spent part of a year later in taking special work at the Akron High School and worked for a year in the repair shops at Akron of the Cleveland, Akron & Columbus Railroad. Going to Philadelphia he entered the drawing office of the Baldwin Locomotive Works, for which he prepared by evening study. From that time on he gave his attention to locomotive work. After five years at the Baldwin Works he became chief draftsman of the Rhode Island Locomotive Works and two years later, in 1882, was appointed mechanical engineer of the Schenectady Locomotive Works. In two years he became superintendent. At the death of the president, Edward Ellis, Mr. Pitkin was made vice-president and general manager and from that time he developed the commercial as well as the manufacturing features of the business which gave these works their high standing among the locomotive building

companies of the country. Upon the formation of the American Locomotive Company Mr. Pitkin naturally became its first vice-president, and on the death of S. R. Callaway, then president, on June 1, 1904, Mr. Pitkin was made president.

Mr. Pitkin's leadership was such as to inspire his associates and subordinates to their best. His interest in his employees was always marked. While in one sense his life work was accomplished, his last days at his office were full of plans and provisions for the developments yet to come. The funeral was held at Schenectady, N. Y., on Monday, November 20, and was largely attended by Mr. Pitkin's New York associates and by the employees of the Schenectady Locomotive Works. Mr. Pitkin is survived by Mrs. Pitkin and four children. A brother is S. H. Pitkin, first vice-president of the Wellman-Seaver-Morgan Company, Cleveland, Ohio.

RICHARD W. KNISELY of the sheet metal working firm of Knisely Brothers, Chicago, died November 15 at Colorado Springs, aged 37 years. He suffered an attack of typhoid fever in July and later went West in the hope of recovering his health. He and his brother, John A. Knisely, succeeded their father, who established the business. Mr. Knisely was a member of the Chicago Athletic, Automobile and Menoken clubs.

JOHN J. BOTHWELL, a mechanical engineer widely known in western Pennsylvania, died at the Presbyterian Hospital, Allegheny, Pa., last week. At the time of his death Mr. Bothwell was one of the supervising engineers of the Carnegie Technical Schools in Pittsburgh. He was born in Allegheny in 1864, where he attended the public schools and afterward graduated from the Park Institute. He was first employed by the J. P. Witherow Company, builders of blast furnaces, holding the position of mechanical engineer for the firm for some years. Later Mr. Bothwell became identified with Julian Kennedy, after which he was mechanical engineer for the Riter-Conley Mfg. Company. Ten years ago Mr. Bothwell engaged in the contracting and construction business with A. M. Wilkie. The firm, which built the Schoen Pressed Steel Car Company's plant at Schoenville and other large works in the Pittsburgh district, dissolved two years ago, and since then Mr. Bothwell had been connected with the William Miller Sons Company, general contractors.

The Pennsylvania Swedish Iron Company, recently organized in Pittsburgh, is building a plant at Cheswick, Pa., for the manufacture of charcoal iron blooms and skelp for tin plate, stay bolts and boiler tubes. The main building will be 80 x 120 feet and will contain six knobbling fires, a 7000-pound hammer, an air compressor and other equipment necessary for the manufacture of the above products. Edward W. Wright is president; Ambrose Beard of the Dover Forge & Iron Company, vice-president, and A. M. Bell of the Fayette Coal Company, secretary and treasurer. The company will have shipping facilities over the Western Pennsylvania & New York and the Pittsburgh, Bessemer & Lake Erie railroads.

Arrangements are being made by the Institution of Electrical Engineers to entertain in Great Britain in June, 1906, representatives of kindred societies in Europe and the United States. Official invitations have been sent to the American Institute of Electrical Engineers, the Canadian Electrical Association, the Associazione Elettrotecnica Italiana, the Elektrotechnischer Verein, the Verband Deutscher Elektrotechniker, the Schweizerischer Elektrotechnischer Verein and the Société Internationale des Electriciens. A week will be spent in London, and then a tour will be made of the principal industrial centers of the United Kingdom.

The beginning of work on the Erie Railroad has been commemorated by a monument at Deposit, N. Y., dedicated November 10. It has been erected on the spot where the first shovelful of earth was removed for the construction of the Erie.

PERSONAL.

A committee, at the head of which is Sir Alexander B. W. Kennedy, has been organized to raise a fund in memory of Archibald P. Head, who was one of the victims of the disaster to the Twentieth Century train. It is proposed to establish a gold medal or scholarship in connection with the engineering department of University College, London. C. T. Millis, Borough Polytechnic, London, S. E., is the treasurer of the fund. Mr. Head was for many years identified with the management of the Otis Steel Company, Cleveland, Ohio.

H. F. Stevens, who has been connected with the sales department of Kelley, Maus & Co., Chicago, has taken charge of the iron and steel sales of C. E. Louis, The Rookery, Chicago.

Walter H. Seaver, formerly secretary and sales manager of the National Steel & Wire Company, is now connected with the American Steel & Wire Company in New York.

James Gayley, Thos. Morrison, H. Coulby and A. F. Harvey, representing the iron ore and vessel interests of the United States Steel Corporation, have been at Duluth and on the Mesaba range recently.

W. J. Chalmers, formerly vice-president of the Allis-Chalmers Company, has taken up offices in the Railway Exchange Building, at Michigan avenue and Jackson boulevard, Chicago.

O. M. Stowe, secretary and treasurer of the Union Malleable Iron Company, Moline, Ill., for a number of years, has resigned to become purchasing agent of the Janney Mfg. Company, Ottumwa, Iowa, which will soon occupy an extensive farm implement plant now building at Columbus, Ind.

Aubrey Spencer, son of J. W. Spencer of the firm of John Spencer & Sons, Ltd., Newcastle-on-Tyne, Eng., manufacturers of plates, forgings and steel castings, is making a tour of Canadian iron and steel works.

W. H. Gibson, for some years superintendent of construction at the Homestead Steel Works of the Carnegie Steel Company, has resigned and has been succeeded by Peter Isle.

Alexander McInnes, Sr., of the McInnes Steel Company, Corry, Pa., has just returned from a two months' visit to Great Britain, during which he succeeded in introducing the company's high speed steel to some of the large manufacturing houses in Glasgow, and is hopeful this is the beginning of a good export business for his house.

G. A. Mayer, who has been treasurer of the Cincinnati Milling Machine Company, Cincinnati, Ohio, since the reorganization some months since, has retired and his position has been filled by C. Wood Walter, secretary, with the new title of secretary-treasurer. Mr. Mayer still retains his financial interest in the company.

At a meeting of the board of directors of the Illinois Steel Company, held in Chicago on Wednesday, G. G. Thorp, general superintendent of the Clairton plant of the Carnegie Steel Company, was elected second vice-president, having assigned to his jurisdiction the supervision and direction of new construction and mill improvements, with headquarters at the general offices of the company in the Rookery Building. The second vice-president will report directly to the president. He is succeeded at Clairton by William Davis, who has been general superintendent of the Donora plant. A. A. Cory, who has been superintendent of the North Sharon mill, takes charge at Donora.

John G. Lanning, formerly superintendent of the Clairton open hearth furnaces of the Carnegie Steel Company, is now superintendent of the open hearth department of the Lackawanna Steel Company, Buffalo.

Charles R. Darrow, formerly president and general manager of the Mahoning Foundry & Machine Company, Youngstown, Ohio, and at present in the sales department of the William B. Pollock Company, Youngstown, has been appointed assistant general manager of the Pennsylvania Engineering Works, New Castle, Pa., and will enter upon his new duties at once, giving special attention to the management and sales of the foundry and machine shop departments.

The Iron and Metal Trades

The bookings of Finished Iron and Steel continue exceedingly heavy in all lines and thus far this month are nearly up to the rate of October. That month was a surprise after the extraordinary record of September, which was not very far from double the actual capacity of the mills. It is quite unprecedented that there should be such a volume of buying at this season of the year, when usually the works are eager for winter work.

The strain in all directions is tremendous and prices are kept down only by main force. During the week the leading interest advanced Tin Plate 10 cents a box and the Sheet makers put up prices on Sheets $2 per ton for Black and Galvanized. It is understood that the American Sheet & Tin Plate Company has now 92 per cent. of its Sheet capacity and 70 per cent. of its Tin Plate capacity in operation.

Conferences among the Wire manufacturers have resulted in a retention of current values, and in the Plate trade an interchange of opinion has led to the continuance of the policy of holding prices uniform. Premiums, however, are paid with increasing frequency.

In the Structural trade the inability to make deliveries is still the conspicuous feature. The new mill at Chicago is running, but only on single turn.

A feature of the markets recently has been the demand for Structural Material and for Plates from Canada, and quite a good business has been done in that direction.

There is increasing evidence of a shortage of Pig Iron for steel making purposes. The Steel Corporation has purchased only a moderate quantity since the sellers are holding their metal at an advance. Other interests, however, have taken several lots in the Pittsburgh district, among them being a Steel plant in the Philadelphia district which has bought from 6000 to 8000 tons at $17 at Valley furnace.

In the East a demand for a considerable quantity of Basic Pig has made its appearance, due to the retention of metal in the Pittsburgh district, which thus far has been delivered to the East. It is hoped that some accumulation toward the end of the year, when the Steel works naturally slacken their output, while the blast furnaces continue in operation, may lead to a very much desired easing up of Pig Metal.

There have been some sales of Virginia Basic Pig to Western Steel works during the past week which netted the furnaces $16.50.

Among the Rail sales is that to the Illinois Central Railroad, involving 34,000 tons; Colorado Southern, New Orleans & Pacific, 17,000 tons; Beaumont, Sour Lake & Western, 9000 tons, and the Alaska Central, 5000 tons.

The representative of the leading producers of Foreign Structural Material reports that thus far the purchases for importation foot up to 40,000 tons, the price having advanced during the movement from £5 1s. to £5 10s., c.i.f. Deliveries are made in six weeks.

The principal transaction in domestic Structural Material during the current week has been the closing of a contract for 30,000 tons of Bridges for the Harriman roads. Thus far this month the American Bridge Company has booked 60,000 tons.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Nov.22, 1905.	Nov.15, 1905.	Oct.25, 1905.	Nov.23, 1904.
PIG IRON:				
Foundry No. 2, Standard, Philadelphia	**$18.25**	$18.00	$17.50	$16.25
Foundry No. 2, Southern, Cincinnati	**16.75**	16.75	15.75	15.75
Foundry No. 2, Local, Chicago	**19.50**	19.00	17.75	16.00
Bessemer, Pittsburgh	**18.10**	17.85	16.85	15.35
Gray Forge, Pittsburgh	**16.75**	16.60	15.85	14.10
Lake Superior Charcoal, Chicago	**19.50**	19.50	18.50	16.50
BILLETS, RAILS, &c.:				
Bessemer Billets, Pittsburgh	26.00	26.00	26.00	21.00
Forging Billets, Pittsburgh	**30.00**	30.00	29.00	24.00
Open Hearth Billets, Philad'phia	**30.00**	29.50	28.00	....
Wire Rods, Pittsburgh	32.00	32.00	32.00	27.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL:				
O. Steel Rails, Chicago	16.50	16.50	14.50	15.00
O. Steel Rails, Philadelphia	**18.25**	18.25	17.50	15.75
O. Iron Rails, Chicago	**23.00**	23.00	22.50	22.00
O. Iron Rails, Philadelphia	**24.00**	24.00	22.50	18.50
O. Car Wheels, Chicago	**18.00**	17.50	16.00	15.50
O. Car Wheels, Philadelphia	17.00	17.00	17.00	14.00
Heavy Steel Scrap, Pittsburgh	**18.00**	18.00	16.50	14.50
Heavy Steel Scrap, Chicago	**15.25**	15.25	14.50	14.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.83½	1.83½	1.83½	1.53½
Common Iron Bars, Chicago	1.85	1.85	1.80	1.50
Common Iron Bars, Pittsburgh	**1.80**	1.84¾	1.74¾	1.44½
Steel Bars, Tidewater, New York	1.64½	1.64½	1.64½	1.44½
Steel Bars, Pittsburgh	1.50	1.50	1.50	1.30
Tank Plates, Tidewater, New York	1.74½	1.74½	1.74½	1.54½
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.40
Beams, Tidewater, New York	1.84½	1.84½	1.84½	1.54½
Beams, Pittsburgh	1.70	1.70	1.70	1.40
Angles, Tidewater, New York	1.84½	1.84½	1.84½	1.54½
Angles, Pittsburgh	1.70	1.70	1.70	1.40
Skelp, Grooved Steel, Pittsburgh	**1.55**	1.55	1.50	1.40
Skelp, Sheared Steel, Pittsburgh	**1.65**	1.65	1.55	1.50
SHEETS, NAILS AND WIRE:				
Sheets, No. 27, Pittsburgh	**2.20**	2.15	2.15	2.10
Wire Nails, Pittsburgh	1.80	1.80	1.80	1.70
Cut Nails, Pittsburgh	1.65	1.65	1.65	1.70
Barb Wire, Galv., Pittsburgh	2.25	2.25	2.25	2.15
METALS:				
Copper, New York	**17.00**	16.62½	16.62½	14.37½
Spelter, St. Louis	*6.00*	6.00	6.10	5.55
Lead, New York	**5.70**	5.50	5.25	4.60
Lead, St. Louis	**5.50**	5.25	5.10	4.45
Tin, New York	**33.60**	33.25	32.60	29.00
Antimony, Hallett, New York	*12.25*	12.50	12.50	9.00
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	**3.59**	3.49	3.49	3.64

Chicago.

FISHER BUILDING, November 22, 1905.—(*By Telegraph*).

Advances of $2 a ton on Sheets and Tin Plate, which became effective this week, are considered as foreshadowing higher prices on other finished lines, owing to the high prices prevailing for raw material. At a conference of some of the Wire interests held here on Monday several of the manufacturers strongly favored an advance of $1 a ton, and at the meeting of the Plate manufacturers, held in the East last Wednesday, a strong sentiment was shown in support of a movement to put up prices $2 a ton. Manufacturers of finished material not controlling their Steel supply are in no position to meet prevailing prices for finished products, considering the present monthly contract basis for Billets and Sheet and Tin Bars. An advance of $1 a ton on Cast Iron Pipe was announced this week, which is due almost entirely to the recent advances on Pig Iron. Powerful influences, however, are endeavoring to hold the Iron and Steel market in check and on a conservative basis, and except in those cases where prices are on an entirely too low basis are opposed to any advance the remainder of this year at least. Western Rail purchases during the week totaled 45,000 tons, 10,000 tons of which were placed by electric roads. While the new business in most of the finished lines continues light, specifications are growing heavier from week to week, and on such lines as Steel Bars and Structural Material the congestion at the mills shows no improvement. While the advance in Sheets and Tin Plate was made largely to satisfy the demands of independent manufacturers not controlling their Sheet and Tin Bar supply it will not affect a very large tonnage, as consumers practically covered their requirements on a lower basis some time ago. The revised list on Sheets carries with it an advance of $1 on Blue Annealed and 10 cents on Gal-

vanized and Corrugated Roofing. As a result of the conference of the Wire manufacturers a better understanding has been reached with regard to differentials, but no change in prices was made. Coke deliveries have improved materially, and somewhat lower prices are prevailing on spot shipments.

Pig Iron.—Several Southern producers are now quoting No. 2 Foundry on the basis of $15, Birmingham, but no sales have yet been reported at this price, as several interests are still willing to sell at $14.50, and only a limited tonnage was taken on during the week on this basis. Lake Superior Charcoal interests are now asking an advance of 50 cents a ton over prices quoted last week, although some grades are still to be had on the basis of $18 at the furnace. Virginia furnaces are quoting $16, which is equivalent to the $15 basis for Southern No. 2, and a number of small lots were closed at this price in the past few days. The demand for Northern No. 2 for prompt delivery continues heavy, and while sales of several car lot orders have been made on the basis of $20, Chicago, for No. 2, this price by no means represents the market, which is ruling about 50 cents lower. Coke shipments have improved materially and furnace stocks are in better condition than they have been for some time. We revise Chicago quotations as follows:

Lake Superior Charcoal	$19.50 to $20.00
Northern Coke Foundry, No. 1	20.00 to 20.25
Northern Coke Foundry, No. 2	19.50 to 19.75
Northern Coke Foundry, No. 3	18.75 to 19.25
Northern Scotch, No. 1	20.00 to 20.50
Ohio Strong Softeners, No. 1	20.05 to 20.30
Ohio Strong Softeners, No. 2	19.55 to 19.80
Southern Coke, No. 1	18.65
Southern Coke, No. 2	18.15
Southern Coke, No. 3	17.65
Southern Coke, No. 4	17.15
Southern Coke, No. 1 Soft	18.40 to 18.65
Southern Coke, No. 2 Soft	17.90 to 18.15
Southern Gray Forge and Mottled	16 40 to 16.65
Malleable Bessemer	19.50 to 20.00
Standard Bessemer	19.30 to 19.55
Southern Basic	18.65 to 19.15
Jackson Co. and Kentucky Silvery, 6 %	18.80
Jackson Co. and Kentucky Silvery, 8 %	20.80
Jackson Co. and Kentucky Silvery, 10 %	22.30

Metals.—The Copper market continues very strong, with an advancing tendency. The Spelter market is dull, but higher prices are anticipated in the near future. We quote: Casting Copper, 17⅛c. to 17¼c.; Lake, 17⅜c. to 17½c.; Pig Tin, car lots, 34c. to 34½c.; small lots, 35c. to 36c.; Spelter, prompt delivery, 6¼c. to 6½c. for car lots; Lead, Desilverized, 5.20c.; Corroding, 5.30c. for 50-ton lots; on car lots, 2¼c. per ton higher; Light Brass, 7¾c.; Sheet Zinc is $7.50, list, f.o.b. Lasalle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 15c.; Heavy Copper, 14½c.; Copper Bottoms, 13¾c.; Copper Clips, 14¼c.; Red Brass, 13¾c.; Red Brass Borings, 11½c.; Yellow Brass, Heavy, 10¼c.; Yellow Brass Borings, 8½c.; Light Brass, 8c.; Lead Pipe, 4⅝c.; Tea Lead, 4¼c.; Zinc, 4.65c.; Pewter, No. 1, 21c.; Block Tin Pipe, 27½c.

(By Mail.)

Billets.—The demand continues almost entirely limited to small lots of Forging Billets for prompt delivery, which are selling on the basis of $35, flat, f.o.b. Chicago. All of the large consumers in this territory are covered by contract until after the first of the year.

Rails and Track Supplies.—Western steam and electric roads placed Rail contracts during the week aggregating 45,000 tons. The Soo line closed for 6000 tons with the Lackawanna Steel Company and an Indiana electric road placed a contract with the same company for 5000 tons. An electric road in Milwaukee purchased 4000 tons and an order for 25,000 tons which came to the local mill was transferred to Pittsburgh. Specifications for Light Rails and Track Supplies continue about 50 per cent. in excess of the capacity of Western mills and shipments continue to be further deferred. Quotations on all kinds of Track Material are firm and well maintained. We make the following quotations: Angle Bars, accompanying Rail orders, 1906 delivery, 1.50c.; carload lots, 1.75c.; Spikes, 1.85c. to 1.95c.; Track Bolts, 2.50c. to 2.60c., base, Square Nuts. The store prices on Track Supplies range from 15c. to 20c. above mill prices. Light Rails, 30 lb. to 45 lb. Sections, $26 to $26.50; 25-lb., $27 to $27.50; 20-lb., $28 to $28.50; 16-lb., $29 to $29.50; 12-lb., $30 to $30.50; lighter Sections down to 8-lb., $35 to $38, f.o.b. mill. Standard Sections are quoted $28, f.o.b. mill, full freight to destination.

Structural Material.—Specifications continue greatly in excess of mill shipments and there is little indication that Western mills will catch up on deliveries short of the first of the year. The new mill at the South works of the Illinois Steel Company is now operating to relieve the Milwaukee plant and after the first of the year a large amount of Carnegie tonnage will be taken on. From present indications this mill can hardly come to the relief of the situation in this territory before the latter part of next year. For future delivery from mill we make the following quotations: Beams and Channels, 3 to 15 inches, inclusive, 1.86½c.; Angles, 3 to 6 inches, ¼-inch and heavier, 1.86½c.; Angles larger than 6 inches on one or both legs, 1.96½c.; Beams, larger than 15 inches, 1.96½c.; Zees, 3 inches and over, 1.86½c.; Tees, 3 inches and over, 1.91½c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending or other shop work. Store prices on Angles, Beams and Channels range from 2c. to 2.25c., according to quantity on hand, in store or obtainable from mill.

Plates.—At the meeting of Plate manufacturers held last Wednesday prevailing prices were reaffirmed, notwithstanding the effort made by some of those present to enforce an advance of $2 a ton. A number of these manufacturers are compelled to buy their Steel in the open market and the spread prevailing at present between the raw and finished product is insufficient to net a profit. It is understood that some will demand an advance of $2 a ton, but this will by no means be general. The new Plate tonnage that is being taken by the mills in this district has not been very heavy in the last few months and in consequence better shipments can be promised than at any time in the past year. Quotations have been reaffirmed as follows: Tank quality, ¼-inch and heavier, wider than 6¼ and up to 100 inches wide, inclusive, car lots, Chicago, 1.76½c.; 3-16 inch, 1.86½c.; Nos. 7 and 8 gauge, 1.91½c.; No. 9, 2.01½c.; Flange quality, in widths up to 100 inches 1.86½c., base, for ¼-inch and heavier, with the same advances for lighter weights; Sketch Plates, Tank quality, 1.86½c.; Flange quality, 1.96½c. Store prices on Plates are as follows: Tank Plate, ¼-inch and heavier, up to 72 inches wide, 2c. to 2.10c.; from 72 to 96 inches wide, 2.10c. to 2.20c.; 3-16 inch up to 60 inches wide, 2.10c. to 2.20c.; 72 inches wide, 2.35c. to 2.45c.; No. 8 up to 60 inches wide, 2.10c. to 2.15c.; Flange quality, 25c. extra.

Bars.—Steel Bar specifications continue from 75 to 80 per cent. in excess of shipments, and in consequence the congestion at the mills grows worse from week to week. New business is comparatively light, and the mills principally concern themselves over shipments on existing contracts. Iron Bars continue firm at 1.85c., and the leading interest is reported to have four months' business on its books. Quotations are unchanged as follows: Iron Bars, 1.85c.; Steel Bars, 1.66½c., both half extras; Hoops, 1.91½c., extras as per Hoop card; Bands, 1.66½c., as per Steel card; Soft Steel Angles and Shapes, 1.76½c., half extras, and Hard Steel Angles and Bars at about 10c. below the price of Soft Steel. In store prices Steel Bars and Bands are being held at a minimum of 1.85c., base, half extras; Steel Angles and Shapes, 1.95c., half extras, and Soft Steel Hoops, 2.20c., full extras, with 5c. to 10c. higher than the minimum prices named for small quantities from store.

Merchant Steel.—The manufacturers of all classes of Merchant Steel, notwithstanding the pressure on their mills, are not advancing prices and are endeavoring to hold them at a conservative level. Here and there small premiums for material for immediate delivery are made, but as a general thing no advances in prices are asked over the prevailing quotations, which are as follows: Planished or Smooth Finished Tire Steel, 1.70c.; Iron finish up to 1½ x ½ inch, 1.65c., and Iron finish 1½ x ½ inch and larger, 1.50c., base, Pittsburgh, and Channels for solid rubber tire are quoted as follows: ¾, ⅞ and 1 inch, 2c., and 1⅛-inch and larger, 1.90c., Pittsburgh; Smooth Finished Machinery Steel, 1.91½c.; Flat Sleigh Shoe, 1.71½c.; Concave and Convex Sleigh Shoe, 1.86½c.; Cutter Shoe, 2.40c.; Toe Calk Steel, 2.21½c.; Railway Spring, 1.86½c.; Crucible Tool Steel, 6½c. to 8c.; special grades of Tool Steel, 12c. and up; Shafting, 50 per cent. discount on car lots and 45 per cent. in less than car lots, in base territory.

Sheets.—An advance of $2 a ton on Black and Galvanized Sheets and $1 on Blue Annealed was announced by the American Sheet & Tin Plate Company this week, effective Monday, November 20. Corresponding advances have been made on both Black and Galvanized Roofing. This advance was anticipated, as some of the independent manufacturers who depend upon the United States Steel Corporation for their supply of Sheet Bars have been bringing pressure to bear to bring about an advance in the finished product. The last official quotation on Black Sheets, fixed last summer, was on the basis of 2.20c. for 28 gauge, f.o.b. Pittsburgh. Practically all of the large buyers have contracted for their future requirements, and this advance will apply almost entirely to small lots for immediate shipment. A corresponding advance in prices has become effective in shipments from store. We revise quotations as follows: Blue Annealed, Nos. 9 and 10, 1.86½c. to 1.91½c.; Box Annealed, Nos. 18 and 20, 2.21½c. to 2.26½c.; No. 27, 2.36½c. to 2.41½c.; No. 28, 2.46½c. to 2.51½c., with the customary differential between gauges. Store prices are 2.05c. to 2.15c. for No. 10 Blue, 2.15c. to 2.20c. for No. 12 Box, 2.25c. to 2.30c. for No. 14, 2.35c. to 2.40c. for No. 16, 2.45c. to 2.55c. for Nos. 18 and 20, 2.60c. for Nos. 22 and 24, 2.65c. to 2.70c. for No. 26, 2.70c. to 2.75c. for No. 27, 2.75c. to 2.85c. for No. 28, 3c. to 3.10c. for No. 30. Galvanized Sheets, in car lots from mill: No. 10, 2.46½c. to 2.51½c.; Nos. 17 to 21, 2.81½c. to 2.86½c.; No. 27, 3.31½c. to 3.36½c.; No. 28, 3.51½c. Store prices on Galvanized Sheets are revised as follows: Nos. 10 to 14, 3.20c. to 3.30c.; Nos. 16 to 20, 3c.

to 3.10c.; Nos. 22 to 24, 3.10c. to 3.25c.; No. 26, 3.30c. to 3.35c.; No. 27, 3.50c. to 3.55c.; No. 28, 3.70c. to 3.75c.

Merchant Pipe.—The continued open weather prevailing throughout the West and Northwest is favorable to the heavy movement from jobbers' stocks. The new tonnage that is being taken on by the mills is comparatively light, but their specifications are unusually heavy, consumers insisting on taking out their entire requirements contracted for during the recent period of low prices. Large contracts have recently been closed for special Pipe for delivery throughout 1906. Current discounts continue to be fairly well maintained, as follows: Black Steel Pipe, 78.35 per cent. on the base sizes, ¾ to 6 inches, and Galvanized, 68.35 per cent. Iron Pipe is quoted from 1½ to 2 points higher. From store in small lots Chicago jobbers are quoting 76½ to 77 per cent. on Black Steel Pipe, ¾ to 6 inches.

Boiler Tubes.—While the mills are not taking on a large amount of new business, the movement from jobbers' stocks continues good. Official discounts, f.o.b. Chicago, in car lots, are as follows: Steel Tubes, 62.35; Iron, 51.35; Seamless, 50.35. Store prices are unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1¼ inches	40	35	42½
1¾ to 2¼ inches	50	35	35
2½ inches	52½	35	30
2¾ to 5 inches	60	47½	42½
6 inches and larger	50	35	..

Cast Iron Pipe.—The anticipated advance of $1 a ton was announced this week. This was not due, however, to the large tonnage that has been taken on or recently contracted for, but rather to the high prices prevailing for Pig Iron. The Pipe season, so far as the West and Northwest are concerned, will practically close at the end of this month, and the Pipe foundries are chiefly concerned in hurrying forward shipments of small lots for repairs and minor extensions to be made before the cold weather sets in. We revise quotations, f.o.b. Chicago, as follows, per net ton: Water Pipe, 4-inch, $31; 6, 8, 10 and 12 inch, $30; over 12-inch, $29, with $1 extra for Gas Pipe. Large municipal contracts are usually placed at somewhat lower basis.

Tin Plate.—Effective Monday, November 20, the American Sheet & Tin Plate Company announced an advance of 10c. a box on Tin and Terne Plate. Practically all of the large Western business has been placed at the low prices which have been prevailing for some time. We quote 100-lb. Coke Plates at $3.40, f.o.b. Pittsburgh, with full freight to point of destination, equivalent to $3.59, Chicago, terms 30 days less 2 per cent. for cash in 10 days.

Wire Rods.—Owing to the activity in the Wire trade Wire Rods have advanced to $33, Pittsburgh, equivalent to $36 Chicago. Chain Rods are held at $35, f.o.b. Pittsburgh.

Coke.—The movement of cars from the Connellsville region has improved materially during the week, and as a result somewhat lower prices are prevailing in this market for both Foundry and Furnace Coke. Foundry Coke, which was held one week ago at $4 at the ovens, can now be had at prices ranging from $3.50 to $3.75, and one consignment of Furnace Coke shipped into this market last week for foundry use was disposed of on the basis of $3.25. Wise County Coke is also somewhat easier and is held at $4 to $4.25, at the ovens. The freight from the Connellsville region is $2.65, and from the Virginia field $2.25. Contracts for By-product Coke for delivery next year are already being made, and tonnage against the output of the local by-product plant which is nearing completion is also being taken on. This material sells on the same basis as Connellsville Coke.

Old Materials.—The spread between Heavy Melting Stock in this district and Pittsburgh is now about $3 a ton, and it is reliably reported that sales of this material for Pittsburgh delivery have been quietly made during the week. That this movement would take place was anticipated some time ago, and Western Scrap dealers have been laying in heavy stocks in anticipation of Eastern sales. Railroad Wrought Scrap has further advanced during the week and the entire list is strong. With the advent of cold weather and the curtailment of the current Scrap outcome it is believed that still higher prices will prevail before the end of the year. The Chicago, Burlington & Quincy and the Chicago, Hamilton & Dayton roads have issued lists aggregating 3000 tons, which are to be closed this week. The range of prices paid by large consumers to producers and dealers in carload lots, f.o.b. Chicago, are as follows:

Old Iron Rails	$23.00 to $23.50
Old Steel Rails, 4 feet and over	16.50 to 17.00
Old Steel Rails, less than 4 feet	16.50 to 17.00
Heavy Relaying Rails, subject to inspection	26.50 to 27.00
Old Car Wheels	18.00 to 18.50
Heavy Melting Steel Scrap	15.25 to 15.50
Frogs, Switches and Guards	15.75 to 16.25
Mixed Steel	13.00 to 13.50

The following quotations are per net ton:

Iron Fish Plates	$19.50 to $20.00
Iron Car Axles	23.00 to 23.50
Steel Car Axles	18.00 to 18.50
No. 1 Railroad Wrought	18.00 to 18.50
No. 2 Railroad Wrought	17.00 to 17.50
Locomotive Tires, smooth	14.25 to 14.50
Railway Springs	15.00 to 15.50
No. 1 Dealers' Forge	14.00 to 14.50
Wrought Pipes and Flues	12.50 to 13.00
No. 1 Cut Busheling	12.50 to 13.00
Iron Axle Turnings	12.00 to 12.50
Soft Steel Axle Turnings	12.00 to 12.50
Machine Shop Turnings	11.50 to 12.00
Cast Borings	10.00 to 10.50
Mixed Borings, &c	9.75 to 10.00
No. 1 Mill	10.00 to 10.50
Country Sheet	9.00 to 9.25
No. 1 Boilers, cut to Sheets and Rings	12.00 to 12.50
No. 1 Cast Scrap	14.50 to 15.00
Stove Plate and Light Cast Scrap	12.00 to 12.50
Railroad Malleable	14.50 to 15.00
Agricultural Malleable	14.00 to 14.50

Philadelphia.

REAL ESTATE TRUST BUILDING, November 21, 1905.

The demand for Iron and Steel has not been as active as during several weeks immediately preceding, yet the undertone of strength is greater than ever, and anything like activity would almost certainly result in a further advance in prices. The American Sheet & Tin Plate Company has made an advance of $2 per ton in Black and Galvanized Sheets and 10 cents per box in Tin Plates, which is regarded as a significant feature, as these specialties have been totally unresponsive to the general improvement until now. The next movement is expected to be in Steel Plates, which have been held down by main force and apparently without any good reason for so doing. The consumption of Plates is by far the largest on record, and as a lot of new business is coming in from the shipyards and other large consuming interests higher prices are amply warranted. The trouble with these belated advances, however, is that they come when the mills are loaded with orders at low prices, so that the immediate advantages even if prices are advanced will not be of much importance; but they will hurry up specifications on old contracts and to that extent will enable the mills to work off some of their old business. The most difficult problem is in regard to transportation. Conditions are such that the least interruption in this respect would disorganize the entire trade. The furnaces must have their full supply of fuel and ores. The mills and foundries must have their allotments of Pig Iron, and as the requirements along these lines will be larger than ever it is obvious that the situation is somewhat critical. The increased traffic is not confined to the iron interests, general business being unusually heavy, which in fact is why the Iron trade is in such splendid condition. With a fairly open winter, however, it is hoped that no serious difficulties will occur, but with heavy snows and bad weather it will be almost impossible to maintain the proper equilibrium. A somewhat disturbing feature is developing in regard to labor. It may not amount to much, but it is a disagreeable incident and contains possibilities not pleasant to contemplate.

Pig Iron.—Sellers recognize that they are likely to have their full share of trouble during the next three or four months. They are always anxious to take care of their regular trade, and in endeavoring to do so they have made very heavy commitments. It may turn out all right in the long run, but many of the furnaces are confronted with costs which eat into their margin quite unexpectedly. They may get higher prices for what they sell during the next few months, but that will not get rid of their obligations on what they sold at lower prices, so that in any event the situation is not a comfortable one. An old-fashioned advance of $2 or $3 per ton more might help them to average out, but they all say prices are high enough, and they prefer that they remain around to-day's figures; but they are not likely to do that, because the trade have convinced themselves that $20 Iron is coming, and any miscalculation in regard to that might precipitate a decline. Of course this is only a contingency, but when the tension is as great as it is to-day the market has got to move; if not upward, it will be downward. This latter is most unlikely, however, first because of the advancing tendency in prices and the increased demand for finished products, and second because of the scarcity of all grades of Pig Iron for spot delivery. If, as seems quite probable, consumption is going to be maintained at the rate of 25,000,000 tons per annum, it will require the fullest output of which the furnaces are capable, and any evidence of a failure to do that would be almost certain to cause an immediate upward movement in prices. According to the present appearance of things consumption will not fall off, and even if there is to be a slight decrease during the early winter months it will no doubt be offset by a failure to maintain the 25,000,000-ton rate of production, so that from any and every point of view the chances seem to favor a continuance of the upward movement in prices, although under contingencies such as already referred to a reaction would not be an impossibility. Prices are not materially different from what they were last week, however, partly because large buyers are fairly supplied and late comers are let off easy, as they only buy moderate quantities to carry them to the end of the year. Purchases of several thousand tons of Bessemer were made in the Pittsburgh district for a local Steel plant at a cost laid down

at mill of about $19.60. Basic has been rather quiet, but there is a renewed inquiry, and buyers will probably have to pay more money before they can get their orders accepted. Malleable Iron has also been sold quite liberally at 25c. to 50c. advance on last week's prices. Low Phosphorus is hard to get at any price, although quotations are nominally $24 to $25. To-day's range would be about as follows for Philadelphia and nearby deliveries:

No. 1 X Foundry	$19.00 to $19.25
No. 2 X Foundry	18.25 to 18.50
No. 2 Plain	17.75 to 18.00
No. 2 Southern	18.00 to 18.50
Standard Gray Forge	16.25 to 16.50
Basic	17.50 to 17.75
Low Phosphorus	24.00 to 24.50
Bessemer	19.50 to 19.75
Malleable Iron	18.50 to 19.00

Ferromanganese.—The situation as regards Ferro is something almost desperate. It is a comparatively easy matter to make sales, but there are times when it becomes a physical impossibility to deliver the goods and that appears to be the difficulty to-day. A large portion of the Ores from which Ferro is made are mined in Southern Russia, which for months past has been in a condition of anarchy. Systematic work has been an impossibility and as the smelters of Ferro have been unable to get the Ores they are of course unable to fill their contracts. How long they will be held up it is impossible to say, but there is no prospect of relief yet and it may be months before normal conditions are restored. Meanwhile those who sold are as badly hampered as those who need the article in their business, but what can either buyer or seller do in such an emergency but submit to the inevitable? A sale of a small lot was made yesterday at $90, spot delivery, but almost any price would be paid to get fair sized lots for early delivery. Tentatively $70 to $72.50 would be quoted for the second quarter of 1906 and $63 to $73 for the third and fourth quarters, but unless the situation in Russia improves deliveries may be as difficult six months hence as they are now, so that prices are merely a gamble anyhow.

Steel.—Prices are firm at about $30 for ordinary Open Hearth Steel, but it would be hard to get deliveries before 1906. Mills are sold so far ahead that they are not seeking business, but try to accommodate their trade at about $30. High Carbon Steel quoted at from $35 to $40, according to specifications.

Muck Bars.—There is no great amount of business doing, although there is a fair amount of inquiry. Quotations are about $28 to $28.25, seller's mill, with sales of a few hundred tons at around that figure.

Plates.—The demand is not unusually great, but specifications are coming in more freely, so that the mills are very busy. Several thousand tons have been taken by the ship yards, besides which there is plenty of business in sight, but prices remain at the old figures, viz.:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel	1.73½	1.78½
Flange or Boiler Steel	1.83½	1.88½
Marine, A. B. M. A. and Commercial Fire Box Steel	1.93½	1.98½
Still Bottom Steel	2.03½	2.08½
Locomotive Fire Box Steel	2.23½	2.28½

The above are base prices for ¼-inch and heavier. The following extras apply:

	Per 100 pounds extra.
3-16-inch thick	$0.10
Nos. 7 and 8, B. W. G	.15 "
No. 9, B. W. G	.25 "
Plates over 100 to 110 inches	.05 "
Plates over 110 to 115 inches	.10 "
Plates over 115 to 120 inches	.15 "
Plates over 120 to 125 inches	.25 "
Plates over 125 to 130 inches	.50 "
Plates over 130 inches	1.00 "

Structural Material.—Only small lots can be had, as the mills have too much work on their books to permit any increase to their commitments. Prices are nominally unchanged at 1.83½c. to 2c. for Beams, Angles, Channels, &c., but no assurance can be given in regard to deliveries. Those who must have material have to rely upon outside sources or pay special rates to any of the mills that are in a position to give such deliveries as buyers require.

Bars.—There is no change in the Bar situation, unless it be that prices are firmer. The demand is not urgent, however, as there appears to be a disposition to resist the advance. Consequently new business is held in abeyance, but specifications on old contracts are coming in in large volume, so that the mills are running to their full capacity. There is a good deal of Bar Iron delivered on the 1.63½c. basis, however, and it is this Iron that is being specified. Mill owners are quite satisfied with this development, feeling confident that the next buying movement will be at higher than 1.83½c., which is now the general quotation for best Refined Bar Iron, some quoting a tenth more than that. Steel Bars are quoted at 1.63½c., but nobody expects to get anything at that figure, which is merely a nominal quotation.

Sheets.—The demand is very much better, and since the advance of $2 per ton by the leading interest almost an unlimited amount of business could be taken by the local mills. For the present, however, quotations are as follows: 18 to 20 gauge, 2.30c.; 22 to 24 gauge, 2.40c.; 25 and 26 gauge, 2.50c.; 27 gauge, 2.60c., and 28 gauge, 2.70c.

Old Material.—Prices are firm, but there is no great urgency in the demand. The Steel mills are well covered and are therefore not bidding for large lots, which appear to be somewhat plantiful at $18. Other descriptions show no distinct change, unless it be that the demand is less "snappy" than it was a week or two ago. Bids and offers for deliveries in buyers' yards are about as follows:

Scrap Steel Rails	$18.25 to $18.50
No. 1 Steel Scrap	17.50 to 18.00
Low Phosphorus Scrap	23.00 to 23.50
Old Steel Axles	21.50 to 22.50
Old Iron Axles	27.50 to 28.00
Old Iron Rails	24.00 to 25.00
Old Car Wheels	17.00 to 17.50
Choice Scrap, R. R. No. 1 Wrought	23.00 to 23.50
No. 1 Yard Scrap	20.00 to 20.50
Long and Short	19.50 to 20.00
Machinery Scrap	16.00 to 16.50
Wrought Iron Pipe	17.00 to 17.50
No. 1 Forge Fire Scrap	16.00 to 16.50
No. 2 Light Ordinary	13.00 to 13.50
Wrought Turnings	14.50 to 15.00
Axle Turnings, Choice Heavy	15.50 to 16.00
Cast Borings	11.00 to 11.50
Stove Plates	13.25 to 13.75
Grate Bars	12.75 to 13.00

Pittsburgh.

PARK BUILDING, November 15, 1905.—(*By Telegraph.*)

Pig Iron.—While only a moderate tonnage of Pig Iron is being sold there is a fair amount of inquiry with prices very strong and giving indications of going higher. The United States Steel Corporation has not bought any Pig Iron for first quarter delivery and may not buy any for some little time. We can report sales of about 8000 tons for December and January shipment at $17.25 to $17.50, Valley furnace, and about 15,000 tons of Bessemer and Basic for first quarter and first half delivery at $17.50, Valley furnace. We also note a sale of 6000 tons of Malleable Bessemer Iron for last half of the year delivery at $17, Valley furnace. We quote Bessemer and Basic Iron at $17.25 to $17.50, Valley furnace. There is a fair amount of inquiry for Foundry Iron, but most large consumers have covered for some time ahead. Prices are very strong and we quote Northern No. 2 Foundry at $17.25 to $17.75, Valley furnace, but note that some sellers are holding their Iron at $18, at furnace. Several fair sized lots of Forge Iron have been sold in the past week and we quote Northern brands of Forge at $15.90 to $16, Valley furnace, equal to $16.75 and $16.85, Pittsburgh. We note a sale of 1500 tons at the lower price.

Steel.—There is only a fair inquiry for Steel, practically all consumers of Billets and Sheet and Tin Bars being covered by regular contracts. Bessemer and Open Hearth Steel Billets for prompt shipment are scarce, the mills being oversold and very much behind in deliveries. This is especially true of Sheet and Tin Bars, and it very often happens that Sheet and Tin Plate mills are compelled to close for two or three days at a time waiting for Bars. We quote Bessemer Billets at $26, Open Hearth Billets at $27 and Sheet and Tin Bars in random lengths at $27, all at maker's mill.

(*By Mail.*)

The situation continues exceedingly strong, with the tendency in prices on Pig Iron, Coke and Scrap to advance still further. It is very evident that it is going to require the united efforts of the large interests to prevent a runaway market on Pig Iron, and whether they will be able to do so remains to be seen. The Steel Corporation has not bought any Iron for first quarter, and it has been suggested that if it would stay out of the market as a buyer for a month or two that would perhaps have the effect of quieting matters. The amount of surplus Iron for sale is so small that it could probably be readily absorbed by outside consumers, so that any buying on the part of the Corporation is not necessary in order to sustain the market. Prices on Bessemer and Basic Iron continue firm, and sales of 8000 to 10,000 tons have been made in the past week at $17.25 to $17.50, Valley, or $18.10 to $18.35, Pittsburgh. There have also been sales of probably 10,000 tons for first quarter and first half delivery at $17.50, Valley furnace. Also a sale of round tonnage of Malleable Bessemer for last half of 1906 at $17, Valley furnace, the Iron going to a local interest. The Midvale Steel Company has had a buyer in the Pittsburgh district in the last few days picking up whatever Bessemer Iron could be found and is credited with having bought 6000 to 8000 tons at about $17.50, Valley furnace. There is a moderate amount of inquiry for Foundry Iron, the Westinghouse interests having bought a small tonnage last week at about $17, Valley. There is a wide range in

prices on Northern Foundry Iron, and while we quote Northern No. 2 from $17.25 to $17.50, Valley furnace, we note that some prominent sellers are holding their Iron at $17.75 to $18, Valley furnace. We also note some inquiry for Forge Iron, Northern brands being now held at $16, Valley, or $16.85, Pittsburgh. There is not much inquiry for Steel, most consumers being covered by contracts, but prices are very strong. Bessemer Billets are about $26 and Open Hearth $27, maker's mill. Sheet and Tin Bars are $27, maker's mill, in random lengths. Tonnage in Finished Iron and Steel continues enormously heavy, and the mills are congested with tonnage. Sheets have been advanced $2 a ton and Tin Plate 10c. a box, effective November 20. Prices on Ferromanganese continue to climb, and small lots have sold at $90, Pittsburgh.

Ferromanganese.—The Ferro market has gone beyond the price question and consumers are willing to pay any figure to get it. Several small lots for prompt delivery have sold on the basis of $90, Pittsburgh, and Ferro can hardly be had at any price. It is the scarcest article on the whole list, and predictions are made that it will sell at $100 a ton within a month. Some consumers who can spare a little are reselling it in the open market.

Steel Rails.—The Lackawanna Steel Company has taken 6000 tons for the Soo line and also 5000 tons for an electric railway in Indiana. Western roads have placed upward of 50,000 tons and electric street car lines are placing large orders. We quote Standard Sections at $28 at mill and Splice Bars, 1.50c. to 1.60c. There is a moderate tonnage in Light Rails and prices are very firm. We quote Light Rails as follows: 8-lb., $36 to $37; 10-lb., $32 to $33; 12-lb., $29 to $30; 16-lb., $27 to $28; 25-lb. to 45-lb., $26 to $26.50, all f.o.b. cars, maker's mill.

Rods.—There is a fair inquiry and the market is very strong. We continue to quote Bessemer and Open Hearth Rods at $32 and Open Hearth Chain Rods $33, maker's mill.

Muck Bar.—There is a moderate inquiry and prices are firm, best grades of Muck Bar made from all Pig Iron being held at about $29, Pittsburgh.

Skelp.—Prices on Skelp are very firm, the mills being well filled up with tonnage and behind in deliveries. We quote: Grooved Steel Skelp, 1.55c. to 1.60c.; Sheared, 1.65c. to 1.70c.; Grooved Iron Skelp, 1.65c. to 1.70c., and Sheared, 1.75c. to 1.80c. These prices are for ordinary widths and are f.o.b. maker's mill.

Plates.—Pressure from some of the mills for an advance in Plates has become so strong that it is not unlikely something may be done in this direction about December 15, on which date the Plate mills will probably hold a meeting to go over the situation. The leading Plate mills are filled with tonnage for some months ahead, while some of the smaller mills that can make reasonably prompt shipment are asking premiums in prices. We quote: Tank Plates, ¼ inch thick, 6¼ up to 100 inches in width, 1.60c., base at mills, Pittsburgh. Extras over the above prices are as follows:

	Extra per 100 pounds.
Gauges lighter than ¼-inch to and including 3-16-inch Plates on thin edge	$0.10
Gauges Nos. 7 and 8	.15
Gauge No. 9	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00
All sketches (excepting straight taper Plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
Marine, "A. B. M. A.," and ordinary Fire Box Steel Plates	.20
Still Bottom Steel	.30
Locomotive Fire Box Steel	.50

Shell Grade of Steel is abandoned.

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ½ of 1 per cent. is allowable. Pacific Coast base, 1.40c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 inches wide down to 6 inches of Tank, Ship or Bridge quality.

Structural Material.—The American Bridge Company has taken a contract for a bridge to be built at Charleroi, Pa., taking about 1800 tons. Some large work is in sight, including two office structures and an opera house at Toledo, Ohio. The Pittsburgh Construction Company is erecting the Steel building to contain the new Structural mill of the Jones & Laughlin Steel Company in record breaking time. The Steel is rolled and fabricated by Jones & Laughlin, the Pittsburgh Construction Company doing only the erecting. Tonnage on the books of the mills is enormously heavy and they are some months behind in deliveries. We quote: Beams and Channels, up to 15-inch, 1.70c.; over 15-inch, 1.80c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.70c.; 8 x 8 and 7 x 3½ inches, 1.80c.; Zees, 3-inch and larger, 1.70c.; Tees, 3-inch and larger, 1.75c. Under the Steel Bar card Angles, Channels and Tees under 3-inch are 1.60c., base for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Sheets.—As anticipated in this report for several weeks, the American Sheet & Tin Plate Company has notified the trade of an advance of $2 a ton in prices on Black and Galvanized Sheets, effective from November 20. This advance is the natural result of a heavy demand for Sheets and the high prices of Sheet Bars. A very heavy tonnage of both Black and Galvanized Sheets has been entered by the leading interests during the past two months, and the American Sheet & Tin Plate Company is now operating over 92 per cent. of its capacity, having only two plants idle, these being the Struthers and Midland works, the former plant being scheduled to start on Monday, November 27. The outside mills also report a material increase in demand, and the general condition of the Sheet industry is very satisfactory. We have advanced our prices $2 a ton and now quote as follows: Black Sheets, Box Annealed, one pass through cold rolls, 10 to 12 gauge, 1.90c.; Nos. 13 and 14, 1.95c.; Nos. 15 and 16, 2c.; Nos. 17 to 21, 2.05c.; Nos. 22 and 24, 2.10c.; Nos. 25 and 26, 2.15c.; No. 27, 2.20c.; No. 28, 2.30c.; No. 29, 2.45c., and No. 30 gauge, 2.55c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.25c.; Nos. 12 to 14, 2.35c.; Nos. 15 and 16, 2.45c.; Nos. 17 to 21, 2.60c.; Nos. 22 to 24, 2.75c.; Nos. 25 and 26, 2.95c.; No. 27, 3.15c.; No. 28, 3.35c.; No. 29, 3.60c., and No. 30, 3.85c. We quote No. 28 gauge Painted Roof Sheets at $1.65 per square and Galvanized Roofing Sheets, No. 28 gauge, at $2.90 per square for 2½-inch corrugations. Jobbers charge the usual advances over above prices for small lots from store.

Iron and Steel Bars.—Current tonnage in both Iron and Steel Bars continues fairly large, while buyers are specifying very freely on contracts. We quote Iron Bars at 1.80c. to 1.85c., Pittsburgh, the Republic Iron & Steel Company holding firmly for the latter price. We quote Steel Bars at 1.50c., base, half extras for carloads and larger lots.

Hoops and Bands.—A fair amount of new tonnage is being placed, while specifications on contracts are very heavy, giving the mills a full amount of work. We quote Steel Hoops at 1.75c. and Bands to be used for cooperage purposes at 1.75c., the latter carry full Hoop and Band extras. Bands for other than cooperage purposes are 1.50c., base, half extras, as per Standard Steel card. Above prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery.

Tin Plate.—Effective November 20, the American Sheet & Tin Plate Company advanced prices on all coated products 10c. a box and we now quote Tin Plate at $3.40 per base box, f.o.b. Pittsburgh, for 14 x 20 100-lb. Cokes, terms 30 days, less 2 per cent. off for cash in 10 days. Demand for Tin Plate is more active than usual at this season of the year, the American Sheet & Tin Plate Company now operating 70 per cent. of its Tin Plate capacity, against 45 per cent. at this time last year. The independent mills are also running quite full and the general situation in Tin Plate is fairly satisfactory.

Merchant Steel.—Current tonnage continues fairly large and specifications on contracts are coming in very freely, the mills having all the tonnage on their books that they can turn out for some months ahead. Consumers of Shafting are now placing season contracts and the mills have taken a good deal of tonnage. We quote: Smooth Finished Tire, 1.70c.; Toe Calk Steel, 2c. to 2.05c.; Railway Spring Steel, 1.65c. to 1.70c.; Cutter Shoes, 2.20c. to 2.25c.; Flat Sleigh Shoe, 1.50c. to 1.55c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades and 12c. and upward for special grades. The demand for Shafting is heavy, which we quote at 50 per cent. discount in carloads and 45 per cent. in less than carloads, delivered in base territory.

Railroad Spikes.—The demand continues very heavy, several of the local makers of Spikes having their entire product sold ahead for the next two or three months. We quote Railroad Spikes at $2 to $2.05 per 100 lbs., f.o.b. maker's mill.

Spelter.—The market is fairly strong, but new demand is not urgent. We quote prime grades of Western Spelter at 6c., St. Louis, equal to 6.12½c., Pittsburgh.

Merchant Pipe.—The demand for Merchant sizes of Pipe continues fairly active, and the mills have a good deal of tonnage ahead of them. As yet there are no indications of any betterment in prices. Discounts are as follows:

Merchant Pipe.

	Jobbers, carloads.				Consumers, carloads.			
	Steel.		Iron.		Steel.		Iron.	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
	%	%	%	%	%	%	%	%
⅛ and ¼ inch	72	56	60½	53½	71	55	68½	52½
⅜ and ½ inch	76	64	73½	61½	75	63	72½	60½
¾ to 6 inches	80	70	78	68	79	69	77	67
7 to 12 inches	75	60	73	57½	74	59	72	56½
Extra strong, plain ends:								
⅛ to ⅜ inch	65	53	62½	50½	64	52	61½	49½
½ to 4 inches	72	60	69½	57½	71	59	68½	56½
4½ to 8 inches	68	56	65½	53½	67	55	64½	52½
Double extra strong, plain ends:								
½ to 8 inches	61	50	58½	47½	60	49	57½	46½

Boiler Tubes.—The tonnage continues heavy, and specifications on contracts are coming in very freely. Prices are being fairly well observed, any shading being done is by one or two of the small outside mills. Discounts are as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1½ inches	41	44
1¾ to 2¼ inches	41	56
2½ inches	46	58
2¾ to 5 inches	53	64
6 to 13 inches	41	56

On Boiler Tubes, 2½ inch and smaller, over 18 feet long, 10 per cent. net extra, and on 2¾ inch and larger, over 22 feet long, 10 per cent. net extra.

Coke.—Consumers of both Furnace and Foundry Coke are pretty well covered by contracts and the demand has quieted down. Prices continue very firm, and odd lots of 48-hour Connellsville Furnace Coke readily command $3 a ton, at oven. Strictly Connellsville Foundry Coke is held at $3.50 to $3.75 a ton, at oven, sales at the latter price being reported by several interests. Main line brands of Furnace Coke continue to be held at $2.50 to $2.75 a ton and Foundry at $3 to $3.25 a ton, at oven. Output of Coke continues very heavy, the Upper and Lower Connellsville regions having made last week over 365,000 tons.

Iron and Steel Scrap.—Prices on old material continue very firm. While the demand is active only a fair tonnage is being sold, consumers refusing in many cases to pay the high prices quoted by dealers, which are about as follows: Heavy Melting Scrap, $18; No. 1 Wrought Scrap, $20 to $20.50; Cast Iron Borings, $10.50 to $10.75; Bundled Sheet Scrap, $15.50 to $16; Old Steel Rails, short pieces, $18; long pieces, $17.75 to $18; Machinery Cast Scrap, $16; Cast Steel Scrap, $17 to $17.50; Old Car Wheels, $18 to $19; Malleable Iron Scrap, $16 to $16.50; Old Iron Rails, $24, all in gross tons, f.o.b. Pittsburgh.

Edward W. Wright & Co. have opened offices in room 307, Empire Building, Pittsburgh, and will handle Pig Iron, Steel and other materials. The new firm will also act as selling agent for the Pennsylvania Swedish Iron Company, whose plant is at Cheswick, Pa., manufacturer of Charcoal Iron Blooms for Tin Plate, and Skelp, Stay Bolts and Boiler Tubes. Mr. Wright was formerly secretary and assistant treasurer of Spang, Chalfant & Co., Pittsburgh.

The Independent Steel & Wire Company has removed its main offices to the House Building, Pittsburgh, Pa. The company still has an office and factory in Chicago and will open an office in New York.

Cleveland.

CLEVELAND, OHIO, November 21, 1905.

Iron Ore.—Arrivals at lower lake ports have been sufficiently numerous to exceed the car supply at this end, with the result that boats are being delayed longer now at unloading ports than at any time during the season. Lower lake docks are reported as pretty generally congested. Small blocks of Bessemer Old Range Ore are being sold at $4, f.o.b. Lake Erie docks, but the general buying movement has not started. The expected price is $4.25 for such ore on big sales to run through 1906.

Pig Iron.—The supply of Foundry Iron for quick shipment is extremely small. Two or three large makers have received inquiries during the week upon which they have been forced to report that they do not know of any Iron for sale. This situation is nearly general through this territory and applies to a considerable extent to business for the first quarter of the year. On either prompt shipment or first quarter delivery nothing less than $18 for No. 2 in the Valleys is now being heard. A few of the Southern makers have Iron to sell here for quick shipment and some contracts have been closed on the basis of $14.50, Birmingham, for No. 2. The situation is strong in Steel making Irons also. The supply of Basic is especially short. One of the large furnaces producing this Iron is now out of blast and the others are tied up in a way that prevents much of the Iron finding its way upon the market. The Bessemer supply is also short, while Malleable is not to be had. The price ranges at about $17.25 to $17.50 at the furnace for all grades of this material. The furnacemen predict that from the present outlook $20 Iron will be seen long before the end of the first quarter of next year. The Coke situation continues strong. The best grades of 72-hour Foundry Coke are selling at $4 at the oven, with first half contracts possible in some quarters at $3.90. Furnace Coke ranges about $3.25 to $3.50 at the oven.

Finished Iron and Steel.—The Sheet market has advanced all around. The market has been stiffening for the past three weeks, due to the fact that smaller producers have ceased their price cutting, being well filled with business. As a result the mills have advanced the price of Blue Annealed $1 a ton and the other grades $2 a ton, the market being especially strong for Galvanized. Quotations out of stock have not changed on Blue Annealed, remaining at 2.05c. for No. 10 as a basis as heretofore, although the quotations on the other grades have gone up, No. 28 One Pass Cold Rolled being quoted at 2.65c. and No. 28 Galvanized being quoted at 3.65c. The Bar Iron situation is also very strong. One or two of the important makers in this territory have turned down orders from good customers, making the statement that they have nothing to ship before the first of next July. Some few of the smaller mills have small lots for quick shipment to be had at stiff prices. The market ranges between 1.75c. and 1.80c., Youngstown. The Bar Steel market is still strong for the larger sizes, the car builders being the best buyers. On these sizes specifications against old contracts are extremely heavy and new business exceeds the possibilities of the mills. The smaller sizes are easy, shipments being possible at an early date and the mills wanting business. Outdoor work is still going on, with a resultant strong demand for Structural Steel. Most of the buying is now through the jobbers in this territory. General sizes sell at 2.50c. out of stock and the smaller sizes, especially 7 and 8 inch, selling at 3c. Some of the smaller Eastern mills are selling in this market at $6 and $7 premium over the association price of 1.70c., Pittsburgh. The shortage of Billets is known to be acute and buyers express doubts of their ability to get any such supply as would satisfy their demands. Some few lots of Forging quality have been sold at $31 and even $32 at the mill, but generally it is not to be had even at that price. The demand for Plates is also stronger, the new demand from the shipbuilding interests cutting something of a figure in the trade. It is known that several good contracts are still pending with the various lake shipyards and some of them are expected to be closed in a very short time. The demand from that quarter is therefore strong. Specifications on old contracts are unusually heavy. Light Rails are also strong, with the supply limited.

Old Material.—The market for the time being is slow. The consumers are not buying and seem to be trying to hammer prices. A good many quotations are nominal. The following is the list of quotations of dealers to the trade, gross tons: Old Steel Rails, $16 to $16.50; Old Iron Rails, $22.50 to $23; Iron Car Wheels $16 to $16.50; Heavy Melting Steel, $16.50 to $17.50. Net tons: Cast Borings, $9.50 to $10; No. 1 Busheling, $15 to $15.50; No. 1 Railroad Wrought, $16.50 to $17.50; Iron Car Axles, $22 to $23; No. 1 Cast, $14.50 to $15; Stove Plate, $11; Iron and Steel Turnings and Drillings, $11.

Cincinnati.

FIFTH AND MAIN STS., November 22, 1905.—(*By Telegraph.*)

Pig Iron.—The market situation continues to show great strength, although the week's sales have possibly been less than the preceding one. With so many of the furnaces absolutely out of the market or making quotations that are practically prohibitive the visible supply of Iron offering through the first quarter of next year is perceptibly less than it was a week since. Neither do we find as many quotations being made as formerly, showing almost conclusively that a more uniform basis has been reached. Inquiry is said to be fairly good in a small way, especially for the first and second quarters of next year. Then, again, there are some buyers who figured on having sufficient tonnage to tide them over the remainder of this year who have found it necessary occasionally to buy what may be termed an emergency supply until delayed shipments arrive. This is largely due to the car situation, which is quite serious and becoming more so each week. We are unable to note any reason why the quotations on both Northern and Southern brands as printed last week should be changed, and while we find some furnaces holding for $14.50, Birmingham, we hear of no sales of moment at this figure and feel confident that $14 to-day actually represents the ruling quotation and established market price. The situation as regards Northern furnaces is practically unchanged, quotations, however, being more at variance and more difficult to locate. As a general proposition, however, it looks as though $17.50 at furnace was unquestionably established, with a few sales at figures 50c. in advance. Gray Forge and the lower grades are in fair demand, with the supply greatly restricted. Basic and Malleable are strong, with one or two large sales reported. We learn of an inquiry for 1500 tons of Foundry from a local melter, which is perhaps the largest open inquiry at present. We are told of one sale of about 5000 tons of mixed grades of Northern and Southern to one of the large car companies. Freight rates from Hanging Rock district are $1.15, and from Birmingham $2.75. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1	$17.25
Southern Coke, No. 2	16.75
Southern Coke, No. 3	16.25
Southern Coke, No. 4	15.75
Southern Coke, No. 1 Soft	17.25
Southern Coke, No. 2 Soft	16.75
Southern Coke, Gray Forge	15.50
Southern Coke, Mottled	15.25

Ohio Silvery, No. 1 (8 % Silicon)	20.15
Lake Superior Coke, No. 1	19.15
Lake Superior Coke, No. 2	18.65
Lake Superior Coke, No. 3	18.15

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	$20.25 to $20.50
Lake Superior Car Wheel and Malleable	19.50 to 19.75

Coke.—This market is of such strength that exaggeration is well nigh impossible. Trade during the past week has not been quite so active, but this is largely the result of shipments being restricted to such an extent that sellers are loth to make promises to consumers that they are absolutely certain they cannot fulfill. There is apparently a full supply of Coke at the ovens, but the car supply is simply inadequate to handle it. We are advised of instances where consumers have chartered special equipment from the railroads that they might in a measure protect themselves and be enabled to receive a working supply of this commodity. Prices are firm and ruling strong. We quote the best grades of Connellsville and Virginia Foundry grades selling from $3 to $3.25, ovens.

Finished Iron and Steel.—The demand for Structural Iron and Plates and car material continues unabated. The mills are contracted for this class of material well into next year, and were the capacity even greater there would yet be enough demand to utilize their added facilities. The car situation enters into this department of the trade also and is causing very serious inconvenience. Prices are unchanged. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.65c., with half extras; the same in smaller lots, 1.90c., with full extras; Steel Bars, in carload lots, 1.63c., with half extras; the same in small lots, 1.85c., with full extras; Base Angles, 1.73c., in carload lots; Beams and Channels, in carload lots, 1.83c.; Plates, ¼-inch and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16-gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14-gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; Steel Tire, ¾ x 3-16 and heavier, 1.83c., in carload lots.

Old Material.—There are no new developments and trade is fairly active and well maintained. With the rolling mills busy consumption has increased greatly, and dealers report a very healthy condition of affairs. We quote dealers' prices, f.o.b. Cincinnati: No. 1 Railroad Wrought Scrap, $17 to $17.50 per net ton; No. 1 Cast Scrap, $14 to $14.50 per net ton; Iron Rails, $20 to $21 per gross ton; Steel Rails, rolling mill lengths, $15 to $15.50 per gross ton; Relaying Rails, 56-lb. and upward, $24.50 to $25 per gross ton; Iron Axles, $22.50 to $23 per net ton; Car Wheels, $16.50 to $17 per gross ton. Heavy Melting Scrap, $15 to $15.50 per gross ton; Low Phosphorus Scrap, $18.50 to $19 per gross ton.

Birmingham.

BIRMINGHAM, ALA., November 20, 1905.

Pig Iron.—The market is slowly but steadily advancing and the end is not in sight. Each week brings stronger prices and the exceptional price of this week invariably becomes the ruling price of next. Iron was easily obtainable last week at $14, with a few sales at $14.50, and this week it is firm at $14.50, with some sales reported at $15, for No. 2 Foundry. It can hardly be expected that the advance in future will be as rapid as during the past few weeks, but much higher Iron is sure to come, and those who have failed to cover for the firast half of next year will experience dffiiculty in securing their requirements. Almost all the sales reported this week have been for delivery the second quarter of next year, a number of furnaces having withdrawn from the market for the first quarter and some of them absolutely refusing to make any quotations at all for delivery next year. Another rare thing for this district was sprung on the buyers here when one of the largest producers informed their trade that they had instructions to hold no quotations open longer than 24 hours. In less strenuous times an option for a week or even a month can usually be had for the asking, but the sellers now seem to be expecting hourly advances and an option on a heavy tonnage would work to their disadvanhage should the same occur. The buying is still confined to the smaller purchasers, no sales for large amounts having been reported.

No. 1 furnace of the Republic Company, at Thomas, which has been out of blast undergoing repairs for some time, will be blown in this week. This, however, will not materially affect their production, as they will probably blow out another stack for relining at once.

The Quinn Furnace Company of Gadsden, who recently bought the old Coosa Furnace from the receivers of the Southern Car & Foundry Company, have repaired and relined same and announce that they will begin making Charcoal Iron within the next 30 days.

It is understood that the Alabama Steel & Wire Company at Gadsden is planning extensive improvements, but is not ready to talk for publication. Along just what line this development will be made is not given out, but it is probable that mills for the manufacture of the surplus from its Steel plant will be erected. The majority of this output is now used by its Wire and Rod mill at Ensley. The trend of the times seems to be for the producers of the raw material to make the same into the finished product. A most interesting object lesson along this line was shown by the Tennessee Coal, Iron & Railway Company in its exhibit at the Alabama State Fair held here last week. It showed the Ore from the time it was dug and the different processes through which it passed until it was rolled into Steel Rails, claiming the time consumed was only 18 hours. Probably no other place in the world is able to produce Steel Rails from the earth to their finished state in so short a time. It uses the molten Iron from its furnaces in its Steel plant adjoining and the Steel Billets are rolled into Rails before cooling. It is now perfecting plans for a Cast Iron Water Pipe plant on the same principle.

New York.

NEW YORK, November 22, 1905.

Pig Iron.—Locally the market has been rather quiet in Foundry Irons, but quite a large business has been done in the New England territory. The market continues very firm, with prices as follows: Northern Iron, No. 1 Foundry, $18.75 to $19; No. 2 Foundry, $18.25 to $18.50; No. 2 Plain, $17.75 to $18, tidewater. Southern Iron is selling on the basis of $17.75 to $18.25 for No. 2 Foundry.

Steel Rails.—Orders continue to crowd in upon the mills, the most noteworthy contract of the past week being 34,000 tons for the Illinois Central. The Colorado Southern, New Orleans & Pacific has bought 17,000 tons, and the Beaumont, Sour Lake & Western (Texas) has taken 9000 tons. Other contracts include 4000 tons for the Chicago & Western Indiana, 5000 tons for the Chicago, St. Paul, Minneapolis & Omaha, 5000 tons for the Alaska Central, 4000 tons for the Illinois Traction, and 3000 tons additional for the Buffalo, Rochester & Pittsburgh. Pending negotiations for Rails involve a very considerable tonnage and there are a goodly number of roads which have made no provision as yet for any of their next year's requirements.

Structural Material.—Import business in Structural Shapes has been proceeded with so quietly that its proportions have scarcely been appreciated. Since the beginning of the present movement early in September it is estimated that about 40,000 tons of German Structural Steel has been sold for delivery in the United States, and importations are now coming into Boston, New York, Philadelphia and Baltimore, with additional business being figured on. The price has advanced from £5 1s. per metric ton, c.i.f. New York in September to £5 10s. This last figures out 1.21½c. to 1.22c., to which is to be added 0.5c. duty, making the New York price about 1.72c., or quite below that of domestic material. The German Steel Syndicate is able to make American deliveries in six weeks from the placing of the order. Bridge work has gone upon the books of the American Bridge Company in large volume in November. The largest contract of the week is 30,000 tons for the Harriman roads, bringing the total for the three weeks of this month up to 60,000 tons, or nearly as much as for September and October together. Bids were sent in this week on 8000 tons for the Chicago & Northwestern Railroad elevated work at Chicago, a very considerable increase over the 2600 tons called for when this work was first bid on. Building demand is comparatively light. A feature in industrial lines is the demand from car works, all of which are urging forward the work on additions forced by the overwhelming car orders of recent months. We quote the following minimum prices for tidewater delivery on shipments from mills: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb Angles and Deck Beams, 1.99½c. Beams 18 to 24 inches, 0.10c. extra; Angles over 6 inches, 0.10c. extra. Sales of Structural Steel out of stock have been made at 2.50c. and as high as 3c.

Plates.—Small orders are fairly numerous. While the aggregate tonnage involved in such business is not very large, the Eastern mills, nevertheless, are continuing to receive good orders from the West and are getting in shape to command premiums for prompt delivery. A meeting of the manufacturers was held in this city last week, at which an effort was made by some of those present to advance the official quotation, but a majority decided not to do so at present. This conclusion, however, will not in any way prevent the asking of premiums whenever the market will justify such action. Quotations at tidewater for shipment from mills are as follows: Sheared Tank Plates, 1.74½c. to 1.84½c.; Flange Plates, 1.84½c. to 1.94½c; Marine Plates, 1.94½c. to 2.04½c.; Fire Box Plates, 2.04½c. to 2.60c., according to specifications.

Bars.—The members of the Eastern Bar Iron trade held their regular monthly meeting Wednesday afternoon, November 15, and after a consideration of the condition of trade decided not to advance prices, but to reaffirm the former official quotation. This official price, however, is still merely nominal, as premiums of $2 to $3 per ton are being asked and easily obtained. While the demand may

not be quite so active as it has been, the mills are reported to be very full of work. Quotations are continued at 1.84½c. to 1.89½c., tidewater, for Bar Iron, and 1.64½c. to 1.84½c., tidewater, for Steel Bars. The small Iron rolling mills in this vicinity are understood to be getting from 1.90c. to 2c. for Bar Iron for prompt delivery.

Cast Iron Pipe.—A sharp demand is still noted for quick shipment of small sizes. Heavy inquiries are being received for next year. The Providence contract for 7000 tons was awarded last Thursday to an independent Eastern foundry. The New York City contract for 7800 tons, on which bids were recently opened, has not been awarded, but will shortly be readvertised. Bids on the New York City letting for 30,000 tons will be opened this afternoon. Prices are stronger, both by reason of the heavy demand for pipe and the continued increase in the price of Pig Iron, and carload lots are now quoted at $28.50 per net ton for 6-inch, at tidewater.

Old Material.—Dealers report a good, firm market. Prices of Steel Scrap have not advanced, but it is understood that quite a number of consumers are short of stock and dealers are looking for considerably higher prices as soon as genuine winter weather sets in, which will prevent the gathering of old track material. A sale of 6000 tons of Heavy Melting Steel Scrap is reported at $18, delivered at works in eastern Pennsylvania. We are advised by one of the eastern Pennsylvania Steel companies that it is suffering from an embargo at present purely on account of the heavy deliveries of Steel Scrap being made by dealers with whom it had contracts. The deliveries were made much faster than expected. Everything in the Cast Scrap line is strong on account of the advancing prices of Pig Iron. In fact, holders of all kinds of material are very firm and are holding out for the highest prices obtainable. Quotations are approximately as follows for New York and vicinity, per gross ton:

Old Iron Rails	$22.50 to $23.00
Relaying Rails	25.00 to 26.00
Old Steel Rails, rerolling lengths	16.50 to 17.50
Old Steel Rails, short pieces	16.50 to 17.00
Heavy Melting Steel Scrap	16.50 to 17.00
Standard Hammered Iron Car Axles	25.00 to 26.00
Old Steel Car Axles	21.00 to 22.00
No. 1 Railroad Wrought	21.50 to 22.00
Iron Track Scrap	18.50 to 19.25
No. 1 Yard Wrought, long	19.50 to 20.50
No. 1 Yard Wrought, short	17.50 to 18.50
Wrought Pipe	15.25 to 15.50
Light Iron	11.50 to 12.00
Cast Borings	9.25 to 9.50
Wrought Turnings	13.00 to 13.50
Old Car Wheels	18.00 to 18.50
No. 1 Machinery Cast	15.00 to 15.25
Stove Plate	12.00 to 13.00
Malleable Cast	15.50 to 16.50

Metal Market.

NEW YORK, November 22, 1905.

Pig Tin.—The market has been quiet, but sales of fair amounts have been made from day to day, ranging from the low point of 33.30c. on Thursday to 33.50c. on Tuesday. To-day's market is firm at 33.60c. The London range of prices has been very steady, with a slight advance in futures as well as in spot. Sales on the London Exchange have been in fair volume. The prices now ranging in New York are slightly below import cost, and this is undoubtedly due to sales of Tin bought at much lower prices, which show a handsome profit to the holders. One good sized cargo has arrived during the week, making the total imports so far this month 2550 tons, and there are afloat for American ports 1695 tons, of which about 500 tons will reach here this month. With the renewal of activity in the Tin Plate mills as well as the large volume of business in allied lines these arrivals may be needed.

Copper.—The situation in this market at the present time is most peculiar and unusual. A buying demand has set in, and quotations have advanced rapidly. The larger holders of the metal say that they have no stock at the present time and are unwilling to make future commitments because of the uncertainty of the market as well as the scarcity of metal. The market for Lake apparently ranges between 16⅞c. and 17⅛c. for spot December and January. A producer of Electrolytic Copper states that his firm has sold this grade of Copper for delivery as far as March, 1906, at 17c. Casting Grades range between 16⅝c. and 16⅞c. Even at this high range of prices some buyers are unable to secure metal for prompt delivery. Production is very large and consumption is going on at a rapid rate, but the export movement is small, amounting to but 8545 tons for the first 21 days of the month. The London market is likewise higher at £75 12s. 6d. for spot, £73 12s. 6d. for future and £80 5s. for Best Selected.

Spelter.—The market is firm and there is an excellent demand. St. Louis holders are selling at the unchanged quotation of 6c., and for New York delivery 6.12½c. is quoted. In the Ore market there has been no change in price, but offerings from sellers in a number of instances resulted in no takings on the part of the buyers. In the London market the price is unchanged, at £28 10s.

Pig Lead.—Spot shipments of carload lots are almost unobtainable. Sales have been made on a basis of 5.50c., St. Louis. In New York the situation is practically the same, 5.70c. being asked for carload lots. In a jobbing way prices ranging from 5.87½c. to 6c. are frequently obtained. The American Smelting & Refining Company quotes shipment Lead at 5.25c. for 50-ton lots, but orders are only taken on the basis of price current on date of shipment. In London the market is a trifle firmer, at £15 8s. 9d.

Antimony.—Business is dull and quotations are slightly lower at 12.25c. to 12.75c. for Cookson's, 12c. to 12.50c. for Hallett's and 11.25c. to 12c. for other brands.

Nickel.—Large lots are selling at 40c. to 45c., and smaller quantities at 50c. to 55c.

Quicksilver.—The old price of $40 per flask of 75 lbs. in 100-flask lots continues. In San Francisco domestic orders are held on a basis of $39. In London Rothschild's price is £7 5s.

Tin Plate.—Considerable improvement has been noted both in the volume of orders and in the matter of price. The principal producer on the 20th advanced prices on 100-lb. IC Coke Plates to a basis of $3.59, f.o.b. New York, and $3.40, f.o.b. Pittsburgh. It is understood that a number of mills will start up in December. In Swansea Welsh Plates are unchanged at 12s. 9d.

Iron and Industrial Stocks.

NEW YORK, November 22, 1905.

The special feature of the past week has been the great activity in the so-called Southern group of the iron and steel stocks. Tennessee Coal reached an extreme point of 106⅛ on Monday, Sloss-Sheffield common touched 89 on Tuesday and Republic preferred attained its high record of 99⅜ also on Tuesday. These stocks were advanced on the persistent report that a deal is in contemplation involving the consolidation of the companies named. Some recession occurred on Tuesday afternoon. A few of the other industrial stocks showed upward movements, notably American Locomotive preferred, which advanced on Tuesday from 114½ to 120¼; Pressed Steel common, which advanced from the low point of 48⅞ on Thursday and reached 52⅛ on Tuesday; Colorado Fuel, which sold at 43 on Thursday touched 46½ on Monday. Other industrial stocks were strong, but fluctuations were not so wide. Last transactions in active stocks up to 1.30 p.m. to-day were made at the following prices: Can common 9½, preferred 70½; Car & Foundry common 40½, preferred 101; Locomotive common 70½, preferred 117¾; Steel Foundries common 12½, preferred 46½; Colorado Fuel 45⅝; Pressed Steel common 51½, preferred 99; Railway Spring common 59⅝; Republic common 27½, preferred 99¼; Sloss-Sheffield common 86¼; Tennessee Coal 104⅜; United States Steel common 38, preferred 103½; Cast Iron Pipe common 38⅞, preferred 93.

The J. A. Fay & Eagan Company, Cincinnati, on November 14 declared a quarterly dividend of 1¾ per cent. on the preferred stock and a quarterly dividend of 1½ per cent on the common stock, both payable November 20.

Dividends.—The National Lead Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable December 15.

New York Pig Iron Warrant Market.

The sale of pig iron warrants and pig iron warrant certificates in the Produce Exchange during the week ending at noon Wednesday amounted to 3600 tons, of which 700 tons were warrants. There was a noticeable increase in the sale of certificates and good prices were established. Transactions were as follows: 500 tons April, regular, $17.50; 100 tons November, regular, $17.25; 400 tons November, regular, $17.30; 200 tons March, regular, $17.50; 100 tons January, foundry, $17.40; 100 tons March, regular, $17.50; 100 tons January, foundry, $17.40; 100 tons March, regular, $17.50; 100 tons March, foundry, $17.55; 500 tons March, regular, $17.50; 100 tons December, foundry, $17.20; 500 tons April, regular, $17.50; 500 tons Dayton G. F., $13.10; 200 tons Dayton No. 4 foundry, $13.45.

The following prices were established on call Wednesday noon:

	Regular.		Foundry.	
	Bid.	Asked.	Bid.	Asked.
Cash	$17.50	....	$17.10	....
November	17.00	$17.50	17.10	$18.00
December	17.30	17.50	17.30	18.00
January	17.40	17.65	17.45	17.65
February	17.55	17.85	17.55	17.85
March	17.50	17.75	17.50	17.85
April	17.55	17.75	....	....

The Buffalo Steam Pump Company has commenced the erection of extensive additions to its plant in North Tonawanda, N. Y., which will more than double its present capacity.

Central American Notes.

SAN JOSÉ, C. A., November 15, 1905.—A work which will tend to revolutionize American carrying trade in this hemisphere has been silently and slowly nearing completion across the Isthmus of Tehuantepec. Sir Weetman Pearson, under contract with the Government, has finally relaid the whole line with steel from Atlantic to Pacific. Several of the curves in the swampy region of Tehuantepec have been straightened, new buildings have been put up and the rolling material greatly improved. Both Salina Cruz, on the Pacific, and Coatzacolcos, on the Atlantic side, have been dredged and generally cleaned up, new piers and wharves built and two or three branch roads run for short distances into the rubber and fruit regions. A new line of steamers will be run to San Francisco in connection with the railroad and a Japanese line will be put on to Salina Cruz, touching at Honolulu. On the Gulf steamers will run to Galveston, New Orleans and New York. In this way it is expected that in the next ten years, or until the completion of the Panama Canal, an enormous amount of East and West traffic will go over this new line, which is now ready for any amount of freight. Nearly $20,000,000 are said to have been spent in these improvements.

The discovery of a number of fraud companies in the United States, which pretended to cultivate rubber, coffee, bananas and cotton has put a quietus on the purchase of large tracts of land in Campeche, Vera Cruz, Chiapas and other States. This is unfortunate because it may also give a setback to the railway lines building in these regions. Of course legitimate business will survive and be the better for it in the end. These sections are extremely prolific, but it is worse than insanity to try to grow coffee on banana land or cotton where coffee thrives.

The rise in the price of silver is helping business throughout Latin-America, and with the good crops of coffee, sugar, fruit, cotton, &c., a good year is now expected. Copper and lead mining is picking up in San Salvador, Cholutect and Segovia. On the Coco and Ulna rivers engineers are at work inspecting conditions for the purpose of bringing in gold dredges. From time immemorial these rivers have produced gold, but no systematic work has ever been done till now. The "bugbear" of the Nicaragua Canal route, which has been lately revived as being under British and Japanese control, is one of those make-believes which may be expected to bob up at intervals in the next ten years. If nothing else, the volcanic cones which stud the whole route of this Nicaragua project would make a canal impossible. No human agency could prevent the canal being wrecked at any moment, and as often as a dozen times a year!

The Illinois Steel Company's Proposed Expansion.

In response to repeated inquiries recently made E. H. Gary, chairman of the Board of Directors of the United States Steel Corporation, gave out the following statement November 22:

"A large body of land approximating 2500 acres, located on the shore of Lake Michigan in the State of Indiana, has recently been acquired in the interest of the United States Steel Corporation or its subsidiary companies. The Illinois Steel Company will probably in the near future make important improvements on this property for manufacturing purposes. The extent of the improvements will depend upon the attitude of the public authorities in Indiana and Illinois respectively. Formerly the concentration of plants of this company has been carried out at its location at South Chicago. During the past ten years its works, known as North Works and Bridgeport Works, located within the city limits of Chicago, have been partially removed to the South Chicago location. This location is well adapted to its business in many ways, and the works there would be further developed if there were sufficient room at that point. The disposition of the Indiana officials seems to be to encourage the location of industries in Indiana in every reasonable way, and therefore the recent purchases have been decided upon. In any event there will probably be erected on this site blast furnaces, open hearth furnaces, by-product coke ovens and various mills for the manufacture of a diversity of steel products."

New Publications.

A Pocket Book of Mechanical Engineering. By Chas. M. Sames, B. Sc. Size, 4 x 6¾ inches; pages, 168; leather binding. Published by the author, Jersey City, N. J.

This book is a condensed mechanical engineer's pocket book, giving only the most important and most used tables, data, formulas, &c., so that it may be conveniently carried in the pocket. It has been compiled from information obtained from standard treatises and reference books, transactions of engineering societies, technical periodicals and manufacturers' catalogues, and the author's own memoranda collected during the last fifteen years. The contents are classified under the headings Mathematics; Chemical Data; Materials; Strength of Materials, Structures and Machine Parts; Energy and the Transmission of Power; Heat and the Steam Engine; Hydraulics and Hydraulic Machinery; Shop Data and Electrotechnics. This is the first edition of the book and the author particularly invites suggestions for subsequent editions and advices as to errors in the present one.

As a result of the bimonthly settlement at Youngstown, Ohio, last week, wages of puddlers and heaters will not be advanced during November and December, puddling remaining on a basis of $5.50 a ton. The shipments of iron bars by the mills in September and October showed that the average price was less than 1.5 cents per pound. It is very probable that at the next bi-monthly settlement to be made in January wages of puddlers and heaters will be materially advanced, as the Republic Iron & Steel Company is stated to be holding iron bars on the basis of 1.80 cents, Youngstown.

The Pittsburgh Coal Company closed a contract on Tuesday with the Republic Iron & Steel Company for practically its entire supply of coal for a period of five years. It is said that the annual minimum amount of coal that will be taken under this contract will be 500,000 tons, and it may considerably exceed this amount. The Pittsburgh Coal Company has a similar contract with the United States Steel Corporation.

The Manhattan Bridge contract for a bridge over the East River, New York, will probably have to be relet, as the court of original jurisdiction decided November 21 that the award to the Pennsylvania Steel Company was open to too many objections and an injunction asked for by a taxpayer was made permanent. The city can of course appeal to a higher court, but much time would be lost waiting for a decision.

The Republic Iron & Steel Company, which is building a new blast furnace at Hazleton, Ohio, has decided to add a second new stack, which will be 20 x 85 feet, the same size as the stack now being built. The first stack, which is pretty well under way, is expected to be ready for operation by April of next year.

The Youngstown Works of the National Tube Company will be shut down November 18, but will likely be idle only a short time. The plant makes the larger sizes of pipe and casing, the demand for which is a little quiet at present.

The Pennsylvania Railroad has under advisement the electric operation of its road between Camden and Atlantic City, N. J.

Oxford Furnace of the Empire Iron & Steel Company at Oxford, N. J., will go into blast in January.

The Machinery Trade.

NEW YORK, November 22, 1905.

Though the machinery trade has for some time been up to the A1 mark the past week has been one of exceptional activity, there being an increase in both orders and inquiries. Some large inquiries have come into the market and large orders have been placed. A few of the latter are but the forerunners of more extensive purchases to be made within a short time; in fact it is expected that the companies which are placing the important orders will continue buying well into the first of the year.

National Machine Tool Builders' Special Meeting.

Though the date has not been definitely set, it is probable that the special meeting of the National Machine Tool Builders' Association will be held in New York December 4 and 5, so that those who wish may attend the session of the American Society of Mechanical Engineers, which will be held in this city, beginning December 5. There are several very important matters to come up at the meeting, which will no doubt be one of the most notable the association has held for some time. The meeting is referred to in more detail in the New England Machinery Market.

F. D. Mitchell, who is the secretary-treasurer of the American Supply and Manufacturers' Association, with offices at 309 Broadway, New York, has issued a call for a meeting of the Executive Committee of that association to be held at the Grand Hotel, Cincinnati, on the morning of November 27. The members of the Executive committees of the National Supply and Machinery Dealers' Association and the Southern Supply and Machinery Dealers' Association have been invited and have expressed their intention to accept the invitation. There are a number of important matters which the heads of these prominent organizations will consider jointly. One thing will be the selection of a meeting place where the three organizations can hold their general conventions simultaneously some time next spring.

At the annual meeting of the Leather Belting Manufacturers' Association, held in New York on November 16, it was decided to advance the price of leather belting 10 per cent. over prices prevailing. This advance was effected by changing the discounts and it went into force immediately after the meeting. No change will be made in the present price-list, according to an announcement made by the association, but it is stated in the trade that a larger advance may be expected within six months. Those who know say they will be surprised if another raise of 10 per cent. does not go into force before the end of six months. This will have decided effect on the machinery trade, inasmuch as the price of leather belting has been high for some time past. The association elected the following officers at this meeting: President, Edward P. Alexander, Philadelphia, Pa.; vice-president, F. H. Croul, Detroit, Mich.; secretary-treasurer, George H. Blake, New York; Executive Committee: Chas. T. Page, chairman; W. M. Spaulding, Frank B. Williams, George F. Hull, Robert N. Hathaway. The following firms were admitted to membership: Bonner & Barnwall, New York; Bodifield Belting Company, Cleveland, Ohio; Fay Belting Company, New York; F. L. Hervey & Co., Fall River, Mass.; W. C. Fay Belting Company, New York; Peerless Belting Company, Buffalo, N. Y.; Southern Belting Company, Atlanta, Ga. The association will hold no semiannual meeting in May unless it is called by the Executive Committee.

Milliken Bros.' Large Purchases.

More than a million dollars' worth of machinery equipment is being purchased by Milliken Bros., 11 Broadway, New York, for their new steel mill which the firm has decided to erect adjacent to its present plant on Staten Island. It was stated in this column last week that preliminary bids were being received, and since then we have been authorized to announce that the company will build the plant. There will be no delay in getting the equipment and some purchases have already been made. The New York machinery dealers have been following the company's movements closely for some time past, and while it has been thought all along that the plant would be erected this positive announcement has given the trade something substantial to look forward to in the way of business. The buying will be done from the company's offices at 11 Broadway, and while some orders have been placed for machinery the greater part of the buying is yet to be done. As stated in another column, the company will build five 50-ton open hearth furnaces, blooming and finishing mills, besides the power and boiler houses. A large amount of power equipment will be needed to carry out the project and the other equipment will necessarily be large. Beyond announcing the fact that the equipment will cost considerably over a million dollars the company has given no information as to the exact quantity of machinery to be purchased. This move will mean much to those who deal in heavy rolling mill equipment and large power plants, while the general run of miscellaneous machinery will necessitate a very large expenditure. In fact the buying will probably exceed anything that has been done here by one company during the year, and nearly every branch of the machinery trade will be benefited.

A project that will entail the purchase of a large amount of machinery is that of the Railway Steel Spring Company, New York, to extend the plant of the Latrobe Steel Company, Latrobe, Pa. A deal was effected last week by which the Railway Steel Spring Company absorbed the Latrobe Company's business, and the latter's plant, which manufactures steel tires exclusively, will continue to run on that class of material. This gives the Railway Steel Spring Company control of the Latrobe Steel & Coupler Company, whose works are at Melrose Park, Ill., and whose product is automatic steel car couplers, elliptic and spiral springs and castings. According to a statement made by the Railway Steel Spring Company the present output of the Latrobe Company is nearly 75,000 tons, and the present plan of extension provides for doubling that quantity. About $500,000 will be spent in the extension, a large amount of which will go for machinery. The negotiations for the absorption of the Latrobe Company have been going on for several months, and President Julius C. French of the Railway Steel Spring Company announced on Saturday that the Latrobe plant had been running under the control of this company since the first of this month. Out of a total of something over 200,000 tons made in this country, more than 70,000 tons of steel tires for cars and locomotives have been turned out by the Latrobe Company. The price of the plant and material on hand was $4,500,000, and $250,000 was paid for pig iron and like material. The purchase money will be raised on an issue of $4,500,000 worth of 5 per cent. bonds, to be redeemed in 15 years or earlier, and the bonds will be issued very shortly. It is stated that the first payment of $500.000 has been made and the balance will be paid in monthly installments within the next four years. It is probable that the purchasing of the equipment will be done from this city, although that matter has not been decided. The preparations for the work of the extension are all under way and it will not be long before the Railway Steel & Spring Company comes in the market for a large amount of machinery.

Important Machinery Requirements.

The following list of tools and machinery for which the Pennsylvania Railroad Company is now in the market is, of course, entirely in addition to the regular tool and machinery programmes, which indicates the expedition with which work is being pushed and makes the irregular purchase of equipment necessary: Universal improved 12 x 20 inch grinding machine, one 60-inch guide grinder with cup emery wheel, one vertical cut off saw, complete with countershaft, to take a 40-inch saw; one heavy common saw table, complete, with 36-inch saw and countershaft; five plain power ramming molding machines for use with loose gated and plated patterns, with vibrator attached, suitable for flasks 20 x 20 inches; one plain power ramming molding machine, for use with loose gated and plated patterns, with vibrator attached, suitable for flasks 36 x 18 inches; tensile testing machine for cement briquettes, capacity 2000 pounds, counterpoise to be moved at the rate of 600 pounds per minute, by electric motor using current of 220 volts; one 12 x 10 x 12 inch duplex outside center packed pump; one drill grinder for grinding twist drills; machine should be capable of grinding drills up to and including 3½ inches in diameter.

One of the largest orders reported closed is that secured by Manning, Maxwell & Moore, New York, from the Philadelphia & Reading Railroad for the major portion of the $200,000 list of machine tools which has been before the trade for some time. The tools covered by the list are understood to be intended for the new shops of the railroad company at Reading, Pa., at which point improvements aggregating $500,000 are being made.

The Virginia & Southwestern Railroad is buying machinery for its shops at Bristol, Tenn.

Among the large inquiries before the trade is the list covering machine tools aggregating $100,000 in value, which the Philadelphia Air Brake Company, Philadelphia, Pa., has sent out.

The Miller-Collins Company has been awarded a contract by the Lidgerwood Mfg. Company, 96 Liberty street, New York, for the erection of its new plant, in the Waverly section of Newark, N. J. The company has a general contract for the erection of the plant, which will eventually cover approximately nine acres of land and will cost in the neighborhood of $500,000, exclusive of the machinery and property. While the Lidgerwood Company has planned to build a foundry, power station and large machine shop, the foundry, power station and a pattern storage house will be erected immediately, and the rest of the plant, it is understood, will be built later on. The company will move from its plant in Brooklyn its power equipment and will only be in the market for accessories in that line. John V. Beekman, superintendent of the company, is in charge of purchasing, and at present he is buying equipment for the foundry and other new buildings. It is understood that it will be some time before the company will give up its present

plant in South Brooklyn, but it will do the larger part of its manufacturing in Newark. It is expected that the buildings which are to be constructed at present will be completed this winter and will be in operation before spring. While the machine shop and other contemplated structures will not be built just yet, the fitting out of the new buildings will entail the purchasing of a large amount of machinery such as is used in the manufacture of Lidgerwood cableways as the company will operate on a larger scale than at the present plant at South Brooklyn. The foundry building will be 120 x 600 feet and will have a capacity of 75 tons or more daily. The power station will be constructed large enough to be equipped with a 1000 horse-power generating apparatus, and the building will be 40 x 245 feet. The size of the machine shop has not been announced, but it will be very large, and sufficient property has been purchased to extend the plant if necessary. The plant at Newark is adjacent to the Lehigh Valley and Pennsylvania railroads, and the company will not have to construct much of a spur to ship its goods on the main line of either of those roads. It is understood that the principal reason for locating in Newark is that while the company has not had any particular labor troubles, according to one of its officers its plant at Brooklyn has been constantly invaded by walking delegates and factory inspectors. The company for some time has also been short of foundry capacity and has had considerable difficulty in getting castings. The moving of the plant from Brooklyn to Newark will not be entirely completed for two or more years, but in the meantime the company will arrange to increase its output materially. The power house, pattern storage and foundry will be constructed of reinforced concrete, structural steel and brick work, with wood and slag roof over the foundry. The Miller Collins Company is in the market for prices on piling, cement, sand, crushed stone, common brick, spruce and pine lumber, windows and sash, doors, skylights, sheet metal work, flooring, about 500 tons of structural steel, tin covered doors, painting, &c.

The Bethlehem Steel Corporation, South Bethlehem, Pa., whose $100,000 list was noted in these columns last week, has been making some purchases the past week.

Frank D. Moses, engineer and contractor for gas works, Trenton, N. J., who recently purchased the buildings formerly occupied by the Trenton Steel Works, does not contemplate engaging in the manufacture of steel. Mr. Moses will use the buildings for the manufacture of gas works machinery, and informs us that he will be in the market for boiler makers' tools for equipping the plant.

Chas. W. Franzheim, president and general manager of the Wheeling Potteries Company, Wheeling, W. Va., with other capitalists have incorporated the Wheeling Enameled Iron Company with a paid in capital stock of $125,000 for the manufacture of a complete line of porcelain lined bathtubs, lavatories, sinks and other sanitary specialties which it hopes to be able to put on the market about February 1. The company has purchased the property of the Heating & Ventilating Foundry Company, and will erect an additional building, 60 x 215 feet. There will be required a great deal of new machinery to put the buildings in shape and purchases will probably be made very soon. The company has not yet decided upon the new machinery it will buy.

The Chapman Iron, Coal & Coke Company, Goshen, Va., intends to rebuild its machine shop and foundry, 42 x 154 feet, which was recently destroyed by fire, upon its original dimensions and will equip it with similar machinery and tools to those that were destroyed in the fire. The specifications have not been prepared, as the insurance has not yet been adjusted.

The American Locomotive Company has ordered from Manning, Maxwell & Moore two 150-ton cranes, with 75 feet span, and two 20-ton cranes with 71 feet span. They are to be Shaw cranes and are ordered for early delivery.

The Leslie Company, Paterson, N. J., is to build a large plant at Lyndhurst, N. J., for the manufacture of pressure regulators, high pressure steam fittings and bronze and composition castings. The company has a tract of land 8 acres in area, affording exceptional railroad facilities, which is bounded on three sides by 60-foot macadam roads and on the fourth side by the Delaware, Lackawanna & Western Railroad. The tract is so laid out that three perpendicular railroad sidings will run through the grounds, the buildings being erected on each side of the sidings. The fourth side will run at right angles to the sidings and through the upper end of the buildings, so that traveling cranes can pick up the load and deliver it from the car to any part of the building and can load the car from any building desired. This fourth track is for the handling of all heavy material. All the buildings will be of structural steel and brick, the steel being inclosed in concrete. At present the brass foundry and accessory buildings, machine shop, testing department and power station have been constructed. This will form the nucleus for getting the new plant under way and will be very materially added to within a short time. The brass foundry is about 80 x 126 feet, having an absolutely fire proof pattern vault, &c. The machine shop is 82 x 160 feet and is being equipped with the highest class of machine tools and special machinery, it being expected to start work there within a week. The testing department is exceptionally equipped for speedily and thoroughly testing valves and steam specialties before they leave the works. The power plant is 40 x 120 feet and has a 120-foot self sustaining steel stack. For the present the power plant will contain a 250 horse-power Babcock & Wilcox water tube boiler, operating at 450 pounds pressure, which will be used for high pressure testing purposes exclusively; a Rand-Ingersoll air compressor, and 1000-gallon fire pump built by the International Steam Pump Company. Next spring the company will install a complete 750 horse-power steam and electric plant for operating the machinery in the new building, the company until then buying power from the local lighting and power company. It is the intention to make this a model plant, utilizing only the highest grade of equipment obtainable.

To further increase the facilities for the manufacture of the Cameron automobile, which is now made by the James Brown Machine Company, Pawtucket, R. I., the Cameron Car Company has been organized, with a capital stock of $200,000 and the plant is to be moved from Pawtucket to Norfolk, Va., where the headquarters of the new company are located. The company has purchased 103 lots on the Norfolk & Western Railroad and Calvert street and plans have been prepared for the new plant, which at the start will consist of a main building, 60 x 440 feet, two stories high, which will be used for storage, wood working and machinery departments and offices, and another building, 50 x 200 feet, to be used as foundry boiler house and testing room. In the new plant every part of the automobile will be built, with the exception of the tire. While the equipment of the old plant is to be installed, it is very likely that quite a quantity of new machinery will have to be purchased. E. S. Cameron, who is at the head of the enterprise, is now at the Hotel Monticello, Norfolk, Va.

It is expected that before the first of the year some additional contracts will be awarded for work on the $101,000,000 barge canal, and that in the first half of the next year further large contracts will be given.

We understand that the Montreal Street Railroad, Montreal, Canada, is to spend a large sum of money for improvements to its system, and that additional machinery is to be installed in the power house and substations to the value of $500,000.

Chicago Machinery Market.

CHICAGO, ILL., November 21, 1905.

While inquiries for general machine shop equipment continue heavy from all sections of the West and Northwest dealers are experiencing more difficulty in making sales, which to some extent may be attributed to the season, as many purchases are now being delayed until after the first of the year. The inability of both dealers and manufacturers to make prompt deliveries is also deferring many purchases. Stocks on Machinery Row in this city are pretty generally depleted and only in a few instances have dealers a complete assortment of any one line of tools on hand. Several months ago the stock floors in this city were well filled with an assortment of all kinds of tools, but the heavy fall demand, which could not be met immediately by the manufacturers, resulted in shipments from stocks and showrooms. Western manufacturers of machine tools are now experiencing difficulty in securing castings and the construction of tools is therefore being considerably delayed. There is no falling off in the demand for small motors and one Western manufacturer was recently compelled to make 60 days' delivery on a 2 horse-power machine. There is apparently little abatement in the demand for second-hand equipment and this will no doubt continue until the manufacturers are in position to make better deliveries. Higher prices on planers are expected in the immediate future and some of the dealers look for an advance on lathes.

The Beardslee Chandelier Mfg. Company, Chicago, will improve the six-story building at 176-178 South Clinton street and will install dynamos and motors for lighting and driving machinery as well as new boilers and heating apparatus. None of the contracts has yet been let and bids will be received at the company's office at 253 South Canal street.

D. H. Fritts & Co., Chicago, are building a new power house and will be in the market shortly for a 500 to 750 horse-power engine and a 100 to 150 kw. direct connected generator.

The Kalamazoo Railway Supply Company, Kalamazoo, Mich., is equipping its plant with a considerable amount of new machinery for electric driving power and with latest improved shop tools. The company is also adding to its plant a two-story building 60 x 186 feet which will be used for storage and light machine work.

The Des Moines Bridge & Iron Company, Des Moines, Iowa, was given the contract at $28,940 by the city of East Moline, Ill., for constructing a system of water works, comprising a stand pipe, pumps, engines, 17,980 feet of cast iron water pipe and accessories.

Philadelphia Machinery Market.

PHILADELPHIA, PA., November 21, 1905.

Business in the local machinery market during the past week was rather dull and the market appears to have drifted into one of those periods of temporary inactivity not infrequently experienced in this territory. There is, however, no apparent reason for this, as business generally is in a very prosperous condition and it is no doubt merely a coincidence that buyers are not placing orders more extensively at this time.

Inquiries for tools and machinery are as numerous as ever, and indicate, it is generally considered, the future activity of the trade. The recent demand appears to be confined to a few tools in each case and in many instances but a single tool is wanted, either for replacement or minor extension.

Manufacturers continue very busy and have in many cases more work on their order books than can be readily handled. At the same time there appears to be no marked tendency to increase the productive capacity of their plants. Extensive enlargements were made by many some three or four years ago, and after the experience of maintaining plants of large capacity in operation during extended periods of inacitivity there appears to be considerable hesitancy displayed by most of the manufacturers to any further enlargement at this time, notwithstanding their inability to meet the present demand for both tools and machinery.

Deliveries have handicapped sales to a marked degree. Many of the inquiries now before the trade would no doubt develop into orders promptly were manufacturers able to make anything like good deliveries. In many instances when buyers find that they are unable to get the tools they want for periods varying from six weeks to six months there is a tendency on the part of the prospective buyer to withhold the order and make other arrangements for performing the work for which the particular tool or machine was intended. From present indications, however, it is quite likely that for the time or at least until after the winter months that deliveries will become even more extended. The railroads are complaining generally of a shortage of cars and their inability to take care of the present business promptly, while further delays in transportation incident to the usual winter conditions may also be expected.

The foreign demand for machinery and tools is only fairly active. There have been a number of inquiries recently for foreign account, but they have been well scattered through the various branches of the trade, and while some orders have been taken the amount is not very large and has been confined to a few lines of tools.

The foundry trades continue very active. Steel casting plants have about as much work on their books as they can conveniently handle. Gray iron foundries, however, are handicapped in a number of instances by labor troubles, and while some are now operating short handed and producing a fair tonnage they are frequently unable to meet the demands of their customers for delivery, and considerable work has been diverted to out of town plants.

The Public Service Corporation, Camden, N. J., is having plans prepared for a new brick and steel power house, details of which are not yet available.

Stearns & Castor, architects, are preparing plans for a ten-story factory building to be erected at 244-254 South Fifth street for Wolf Bros. of this city. The building will be constructed of brick and steel. Detail plans and specifications for same have not yet been fully decided upon.

The Keiser Mfg. Company has recently been formed at Reading, Pa., for the manufacture of high grade sheep and grass shears, as well as other cutting tools of a like nature. A new plant, containing some 6000 square feet of floor space, has been erected and nearly all of the machinery required has been installed, while orders for the remainder needed at this time have already been placed. It is probable, however, that some additional equipment will be needed in the near future.

The Crescent Phosphorized Metal Company will remove from this city to Cambridge, N. J., where a new plant, 40 x 150 feet, has been acquired. The transfer of its machinery and equipment will be completed, it is expected, by December 1. The office of the company will be continued in Philadelphia, but the location has not yet been determined upon. The new plant will greatly increase the company's capacity, and while some additional machinery has been purchased it is expected that it will be in the market for further equipment as soon as it becomes established at the new location.

The Standard Pressed Steel Company has recently established an agency for the sale of its American Pioneer pressed steel shaft hangers in Sweden with Aktiebolaget, B. A. Hjorth Company of Stockholm. This concern notes a constantly improving foreign demand and extensive shipments of hangers have been made to Melbourne, Australia; Copenhagen, Denmark, and Stockholm, Sweden. The domestic demand has also increased very largely, and a number of plants are being completely equipped with these hangers. General orders and inquiries are very good and promise a still larger volume of business in the future.

The Espen Lucas Machine Works notes an increased demand for cold saw cutting off machines, as well as for special tools, and is busy in all departments. It recently shipped two double saw crank shaft cutting off machines to parties in the central part of the State. Bar and steel foundry saws have been furnished a number of customers, and in many cases grinders were furnished with the same. A heavy floor boring machine was also delivered a large Western customer. The company has taken on a large number of orders, most of which have been for tools of the heavier type.

The E. H. Mumford Company has taken orders for a large number of molding machines, business during the past month showing a gain of more than 100 per cent. over that for the month of October. Inquiries are numerous and cover all classes of machines. Among recent orders was one for 16 machines for New England, of which eight are to be 12-inch power ramming machines and eight of the 14 x 16 inch split pattern type. Three jar ramming machines have been sold parties in the Middle West, as has also a 20 x 30 inch power ramming split pattern machine. A number of 13 x 18 and two plain power ramming machines have recently been delivered to customers both locally and in the nearby territory.

The Royersford Foundry & Machine Company, Royersford, Pa., is placing on the market a smaller size of its combined punch and shear, particularly designed for light work. This machine will punch ½-inch round holes through ⅝-inch iron or steel, and will shear material ¾ of an inch round, and is being received, it advises us, with considerable favor by the trade. The company is busy in all departments, and particularly so in the line of power transmission machinery. A number of punching and shearing machines have been shipped its various trade, two large ones having just been delivered to parties in New York.

The Baldwin Locomotive Works made another high record last week, when the output of engines reached a total of 60, and at the present rate the output for November promises to exceed all previous records. Orders for locomotives are being received in good number by this company, a recent one being for 50 of the consolidation type for the Rock Island Railroad. All departments of the Baldwin Works are operated at their best capacity, and the amount of work now on the company's books will keep them fully occupied for many months.

New England Machinery Market.

WORCESTER, MASS., November 21, 1905.

President E. M. Woodward of the National Machine Tool Builders' Association has not yet issued the formal call for the special meeting of the association, which was alluded to in *The Iron Age* of last week. A petition asking for the meeting has been presented to him, signed by eight members, as provided in the by-laws, and he has sent out letters to the members asking their views as to a place of meeting, whether it shall be in New York or elsewhere, and suggesting the week of the meeting of the American Society of Mechanical Engineers as the time in case New York is chosen. He will base the call upon the preferences of the members. However, the strong probability, in fact, almost the certainty, is that the meeting will be held in New York on Monday and Tuesday, December 4 and 5. The mechanical engineers begin their sessions on the evening of December 5, so that the meetings would not conflict. Not a few of the members of the National Association would like to attend the sessions of the Mechanical Engineers, and making their meeting place New York on the dates stated would be a great convenience to those who live at a distance. Such is the generally expressed opinion.

The plan is to give up Monday, or that part of the day necessary to the purpose, to meetings of the several sections, sitting as committees, all to report to the association as a whole after the preliminary work has been attended to. However, as the suggestion has been made that the association meet at some point more central geographically than New York—that is, some point nearer Pittsburgh and the Middle West—President Woodward is asking the views of members, that the majority may be accommodated.

The meeting has a dual purpose. The question of advancing prices will be considered, and it is quite likely that a vote will be taken. At the annual meeting this matter was complicated by becoming involved in the discussion of the proposed new contract between manufacturer and dealer, with the result that the whole matter was left in the air. Conditions affecting prices have not changed since the meeting. Business is even better, if anything. The price of materials is high and labor is scarce and expensive. The milling machine manufacturers and some of the manufacturers of planers, drills and miscellaneous tools have advanced their prices as individuals, and this should have an influence in shaping the course of the meeting, though it is by no means certain that opposition to a general advance, under the by-vote of the association, will not be made.

The second matter of importance is the new agreement between the manufacturers and the dealers. Committees

representing the Machine Tool Builders' Association and the National Supply and Machinery Dealers' Association have met and threshed out various questions of the new contract under which the manufacturers and dealers will do business hereafter. An agreement has been reached between the two committees which is embodied in the form of contract. This includes the provision for exclusive territorial rights, over which there appears to be no disagreement as to its expediency, for it is believed that it works out for the best interests of all concerned. But there are other important questions connected with the contract which will come up for discussion, the committee agreement being entirely tentative, subject to adoption by the two associations. It is understood that the dealers are well satisfied with the contract as agreed upon by the committees. It will be seen that the special meeting will be of unusual importance, probably of more importance in its immediate results than the annual meeting, and the attendance should be correspondingly large.

J. S. Wheeler & Co., Worcester, Mass., manufacturers of metal planers, have decided to go out of business and to offer their machinery for sale. The business is an old one. It was established in 1867 and was formerly located on Hermon street, but four years ago it was moved to its present shop at 98-100 Beacon street. While never conducting business on a large scale, the firm has made a name for itself because of the excellence of its planer.

The Boston Elevated Railway Company is to make exhaustive tests to ascertain the relative merits of steam turbines and gas engines from the standpoint of fuel cost. Two installation of gas engines and one of steam turbine will be used for the tests. Three Crossley gas engines of 500 kw. each will be installed at the Medford power station, three Corting gas engines of 500 kw. each at the Clarendon Hills power station and a 2000 kw. Curtis steam turbine at the Dorchester power station. The experiment will be conducted on thoroughly practical lines. Each power station will have the same general work to perform, and careful measurements will be made of fuel consumption and power generated to ascertain the relative cost per kilowat hour. The exponents of the gas engine claim great economy in cost of fuel, the contention being that this type of engine will produce a horse-power per pound of coal. But the gas engine has never, so far as known, been given such a test under conditions of continuous operation, and the exacting requirements of the street railway power station should give very reliable data. The steam turbine people claim economies of operation outside of fuel, especially in continuity of operation, in freedom from expensive repairs and in saving of space.

The Colonial Foundry & Machine Company, South Norwalk, Conn., has voted to increase its capital stock from $100,000 to $200,000, the purpose being to use the additional resources as working capital and for extensive improvements in manufacturing facilities, including enlargements which are contemplated for the near future. The company does foundry, machine and pattern work and has a prosperous business, as evidenced in the proposed increase in capital. The officers are: President, William M. Brewer; secretary and treasurer, William S. Folant, and manager, Charles H. Aisthorpe.

The Norton Grinding Company, Worcester, Mass., announces that it has advanced prices 10 per cent. on its entire line of grinding machinery. The company has been giving a 10 per cent. discount from list prices and the advance consists of eliminating this 10 per cent. The company is rushed with business, no promise of delivery being made on certain tools before June. If skilled labor were available conditions would be improved, as the company has room enough to greatly increase capacity.

J. W. Carrel, recently of the Draper Machine Tool Company, Worcester, Mass., has associated himself with J. J. McCabe, machinery dealer, 14 Dey street, New York, and will travel for the house from New York. Mr. Carrel has a very wide acquaintance in the trade through his connection with the Draper Company and previously with Hill, Clarke & Co., with whom he was connected for years, traveling from the Boston office.

The business of the Evarts Mfg. Company, Hartford, Conn., has been incorporated in Connecticut with capital stock of $25,000, the purpose being to increase manufacturing facilities by the addition of new capital. The officers are: President, Howard A. Evarts; treasurer, Pierre M. Arnold; directors, these officers and E. P. Anderson. The company manufactures gasoline engines and it is proposed to increase the product. Later on the machine equipment will be increased by the purchase of new machine tools, principally lathes.

The Meriden Brass & Iron Works Company, Meriden, Conn., manufacturer of architectural iron work, is to build an additional factory 50 x 60 feet and one story. Some new tools will be required, especially punches.

The Struthers Works of the American Sheet & Tin Plate Company, at Struthers, Ohio, which has been idle for some months, is scheduled to start November 27.

Indianapolis Machinery Market.

INDIANAPOLIS, November 20, 1905.

A tour of the shops of the machine tool builders of Indianapolis but emphasizes the fact that great activity prevails all along the line and that the industrial conditions we find here are a very fair exponent of trade throughout the country. Without a single exception they report that they have all they can do for months to come. Expansion is the order of the day and a number of the plants are taking the necessary steps to increase their facilities materially in order to accommodate increased trade. New shops are springing up in a number of places and the whole scene is one of great activity. The structural builders, in line with others, are having all they can do, with a number of new buildings under way and others in contemplation. The railroads are contributing their proportion along this line and the report is that a large addition is to be erected to the terminal sheds of the Union Station within the next year. Here we find the interurban elcctric lines at their best and the city is rapidly becoming a great center from which a network of diverging lines is being spread in all directions throughout the surrounding country. These lines have been heavy purchasers of rolling stock as well as other equipment necessary for their maintenance and by paralleling the steam roads have become important factors in the commercial world. Here also we find the automobile industry in a flourishing condition, several large concerns being located here whose product has become famous throughout the whole United States. With almost unlimited railroad facilities, natural conditions of the best and with comparatively low real estate valuations it is scarcely to be wondered at that we find represented here such a diversity of manufacturing interests.

The Capital Machine Works, builder of veneer cutting machinery, reports an exceedingly good trade, in fact larger by over 40 per cent. than at time in its history. Orders are booked for five or six months in advance and great trouble is experienced in making required deliveries. There is a large and growing demand from the South for machines of this character, as veneer plants throughout that section are said to be increasing at a rapid rate. It now appears that it will soon be necessary to make a change in location in order to facilitate the handling of freight in both directions and steps are being taken to secure a place with more direct track connections. In the event of this being secured considerable new equipment will be required.

The Speed Changing Pulley Company, manufacturer of the Universal automatic carburetter for automobile and marine service, reports a very satisfactory state of trade. The working force of the plant has been increased and a number of new tools have recently been added to the equipment.

The Bates Drop Forge Company has recently patented a drop forged double flange track wheel and also a sheave wheel which are said to be practically unbreakable. These are made in sizes up to 10 inches, as required. This is said to be an entirely new conception, which it is expected will revolutionize matters where double flanged or sheave wheels are required. These wheels are only half the weight of a cast iron wheel of the same size, but of double the tensile strength. An order has been received from one concern for 25,000 of these wheels, which will consume the entire output of the plant for some time to come, as the capacity at present is only 150 per day. Two new engines of 125 horsepower each are being installed, as is also a 4000-pound steam hammer. The company is in the market for a vertical milling machine and several trimming presses. With this additional equipment the capacity of the plant will be doubled by the first of the year.

The F. W. Spacke Machine Company, manufacturer of air compressors and automobile parts, says that practically its entire capacity is contracted for up to July of next year. The plant has been running day and night, the calls from automobile builders being especially urgent. The air compressor department is comparatively a new acquisition but is developing in a very rapid and satisfactory manner. The company now has three shops in different parts of the city, which later in the year will be consolidated into one large plant. Plans are now being perfected for this change, which will mean a building 64 x 175 feet, two stories high. A little later an erecting department will be added, making a total frontage of 86 feet. When completed the present equipment will be rearranged and a large number of new tools purchased so that the capacity of the plant may be doubled. Some foreign trade is reported, but no special efforts are being made in this direction.

The Parkhurst Mfg. Company, builder of elevators, machinery, castings, bolts, rods, &c., will remove to Peru, Ind., some time next month, where it is understood special inducements are being offered to plants desiring a change in location. The new building at Peru is being erected, which will greatly increase the facilities over the present plant. Trade is said to be excellent.

The Diamond Chain & Mfg. Company reports trade excellent, particularly as manufacturers of machinery are increasing the use of its product instead of belts. The auto-

mobile part of the business is said to show handsome gains and the bicycle trade is much better than a year since. The present equipment is sufficiently large to handle business, a number of new tools having been purchased during the past year.

The Capital Gas Engine Company, manufacturer of gas engines from 1½ to 60 horse-power, says that a fairly normal condition of trade obtains. It is now building an automatic clutch for gas engine use in addition to its regular line. A suction gas producer is being installed that it is expected will furnish 25 horse-power for ten hours on 250 pounds of hard coal. This machine will also be handled in addition to the above. A new boring mill will be required about the first of the year.

The National Motor Vehicle Company reports that to date a larger business has been done on next season's orders than was the case as late as February last year. A very large percentage of this trade comes from points east of Indianapolis. It has recently added a number of new tools and its capacity is 15 gasoline touring cars per week. This, however, is far below present requirements, and arrangements are now being made to enlarge the plant and increase the capacity about 50 per cent. When this is perfected a full line of standard tools will be required.

C. & A. Potts & Co., manufacturers of power brick machinery, report a fairly active condition of trade, with inquiries for next year's business coming forward in a very satisfactory manner. This is what they term the dull season in this line, as during the frozen months of the year very little is done. A change, however, comes in January, when machinery for early spring building is bought and shipped ready for action as early as weather conditions will permit. There is a foundry in connection with the plant which supplies all the castings required.

The Sinker Davis Company, builder of saw mill machinery and engines and boilers, says that general trade is good, the band saw mill trade being very heavy, with orders coming from Mexico and Cuba. Trade in the South was for a time very quiet on account of yellow fever and flood conditions, but is now normal once more. A new building, 45 x 221 feet, three stories high, is being erected for pattern storage and shop purposes. It now looks as though some additional equipment will be necessary when this building is completed and ready for service.

The Nordyke & Marmon Company, builder of flour mill machinery, cotton mills for plantation use and automobiles, reports trade better than ever known. Usually it opens in May and begins to slack up during August, but this year has been one of rush work continuously. The building of automobiles has developed into large proportions and the company has found it necessary to utilize a large building recently erected for foundry purposes for this industry. This addition is of iron and steel construction, 104 x 340 feet, with facilities for natural light practically perfect. In this building arrangements have been made for four cupolas, with an industrial railway on each floor and also overhead, reaching all parts of the plant. Here castings of aluminum for auto beds are made, which take a finer finish than polished wood. The pattern storage warehouse is a model of neatness and the systematic arrangement of supplies is noteworthy. Several new gear shapers and a crank shaft binder have been recently added to the equipment, and the company will be in the market for quite a variety of new tools when present plans are completed.

The Chandler & Taylor Company reports a phenomenal sale of engines, finding that not only customers who wish direct connected inclosed type engines are interested, but also others. An order for six of these engines was received from one concern in a week's time. Orders are now so far ahead that deliveries cannot be made sooner than February next. This company has recently erected a foundry building on the other side of the river, where the entire plant will eventually be assembled. The next building to be erected on the new factory site will be the main power house for foundry, boiler shop, machine shop and office buildings. Considerable new machinery will then be required, which will largely increase the output of the plant.

Cleveland Machinery Market.

CLEVELAND, OHIO, November 21, 1905.

Automobile manufacturers continue to occupy the center of the stage in the machinery market with orders for additional tools to take care of a situation which is constantly growing brighter in the promise of big business for next year. The beet sugar industry, which derives much of its supply of machinery from this city, has opened up in good shape for next year and recently contracts were closed for four large plants. These mean some business in the structural iron line, extensive steam plants, engine and electrical equipments and complete repair shop equipments for each plant.

The Kilby Mfg. Company, a leader in the beet sugar plant line, has the contract for a plant to have a capacity of 1200 tons per day for the Billings Sugar Company of Billings, Mont. This will involve the purchase of about 1200 tons of structural material, eleven 350 horse-power boilers, two 400 horse-power Corliss engines and two 75-kw. direct connected lighting units. The company will also purchase repair shop equipment, consisting of a 32-inch lathe, 40-inch planer, a pipe bending machine, several drill presses, small lathes, &c. The Kilby Company also has the contract for the removal and rebuilding of a 600-ton plant from Tawas, Mich., to Chaska, Minn.

E. H. Dyer & Co., who are also contractors for sugar plants, have the contracts for a 600-ton plant at Nampa, Idaho, for the Western Idaho Sugar Company, and for two plants of the same size to be erected in Colorado for the Great Western Sugar Company. A greater portion of the equipment for these has been contracted for including the structural material, seven 350 horse-power boilers a 20 x 30 inch Allis-Chalmers Reliance type engine, and some machine shop equipment for each plant.

The Royal Motor Car Company is moving into a new shop, 50 x 200 feet, and two stories high. A number of tools have been purchased, but more will be bought in the near future. George H. Bowler, Williamson Building, is purchasing agent for the company.

The Cadillac Automobile Company of Detroit has been buying considerable additional machinery from dealers in this city.

The Ralston Steel Car Company of Columbus, manufacturer of steel cars, has been a buyer of machinery in this market during the past two weeks.

The Baker Motor Vehicle Company of this city is erecting a large new shop, which will be under cover this week. Machinery from the old plant will be moved into this, but it is probable that additional machinery will be bought in the near future, as the capacity of the plant is being about tripled.

The Youngstown Sheet & Tube Company, Youngstown, recently placed orders for a number of new tools, some of which went to Cleveland dealers. It is making an important increase in capacity.

The Thew Automatic Shovel Company, Lorain, is having preliminary plans prepared by a Cleveland engineer for an erecting shop, 85 x 300 feet.

The American Stampings Company, Lorain, is also figuring on a large addition for a rolling mill. The company manufactures hand shovels, rakes and other small agricultural implements.

The Cleveland Machinery & Mfg. Company is moving into a new machine shop addition, 60 x 60 feet. The company may install additional machinery and power equipment a little later, but is not on the market at present. It has a large amount of rolling mill machinery work on hand, including large tables and rolls for the Illinois Steel Company.

The Acme Machinery Company, manufacturer of bolt, nut and forging machinery, reports that it was never busier and has a number of large contracts in sight for this winter. Foreign business is very good, a large shipment having been made to Russia within the past two weeks and several shipments to England, Scotland and Continental countries. It is just completing a complete outfit of riveting machines, threading machines, &c., for the Canada Car Company, Montreal, Canada, and a complete nut and bolt plant for the National Bolt Works, San Francisco.

The C. O. Bartlett & Snow Company has secured the contract for erecting a fuel elevating and conveying outfit for the Wabash Coal Company in Cleveland. Fuel will be taken from cars in clam shell buckets and elevated about 100 feet to the level of the city and dumped into overhead bins for loading wagons. The plant will have a capacity of 400 tons an hour and a large steam plant will be installed, equipment for which has been purchased. The company is also building a large drying and elevating outfit for the Struthers Furnace Company, Struthers, Ohio.

The Cook Motor Company, Delaware, Ohio, manufacturer of gas engines, has moved into a large addition. Considerable new machinery was recently purchased and more will be added to bring the capacity up to several times what it was a few months ago.

The Stirling Consolidated Boiler Company at its Mansfield, Ohio, plant has submitted plans for 1 3000 horse-power boilers, to be used by the Pennsylvania Railroad for its new shops at Jersey Flats, N. J. These are much larger than anything than has ever been built at the Mansfield plant.

The Buckeye Gas Engine Company, Delta, Ohio, has been organized by C. C. Reed, J. M. Longnecker, W. T. Saxton, O. J. Wisman, W. E. Fowler and others of Delta. The company has purchased the plant and business of the Underwood Mfg. Company at Elmore Ohio, and will move it to Delta. It will erect quite a large plant, one building 55 x 108 feet to be erected immediately. Next spring a large foundry will be added. The company will manufacture gas engines, gasoline fire engines and special machinery.

The Lake Shore & Michigan Southern Railroad Company's signal department is preparing to erect a power station at Elyria, Ohio, to supply power for a enw system of automatic block signals recently adopted by the company. This will be one of three power stations between Cleveland and Chicago, the locations of the other two not having been determined as yet. Each station will have about 400 horse-power of steam and generating equipment.

HARDWARE

THE leadership of Hardware in export business furnishes ground for congratulation to the trade. While in the marketing abroad of American products Iron and Steel, as shown in the admirable paper of O. P. Austin, which is given on another page, have a commanding position and show a greater percentage of increase than any other line, it is noticeable that Hardware, a subdivision of this great group, holds the first place. It thus leads all departments of manufacture in the progress it is making toward the occupancy of foreign markets. This speaks well for the ingenuity and skill of our manufacturers, the variety and attractiveness of their products and their ingenuity and resourcefulness in finding foreign markets. It is especially gratifying to note that, notwithstanding the great pressure on their capacity from the trade in this country, which has characterized business for several years, there is no relaxing of their efforts to secure and hold export business. At the present time the home demand is exceedingly heavy and in the desire to take care of it with ease and comfort to themselves and their customers there is danger that some manufacturers might be disposed to let their far off connections suffer. This would be a short sighted policy, entailing severe penalty one of these days when foreign orders will be greatly in request.

What may be termed a flanking movement in the catalogue house campaign is reported from a town in Illinois. The merchants in that town are thoroughly organized and adopt systematic methods of obtaining the names of the patrons of the mail order houses, paying indeed, it is said, the draymen who deliver the goods for furnishing them this information. The customers of the catalogue houses thus known to all the merchants of the town are refused credit in the stores, no matter how good their financial standing may be, and when they have butter and eggs or other produce to sell they are politely told to send them to Chicago.

Whatever practical difficulties there may be in carrying out such a policy and whatever criticisms may be passed upon the policy itself, there is certainly much which must command the approval of the trade in an effort conducted along the lines indicated. There is the recognition of the seriousness of the catalogue house competition as militating not only against the interests of individual merchants, but against the welfare of the community as a whole. Just in so far as orders are sent to Chicago do local business enterprises suffer. It is therefore proper that there should be concerted effort in self defense. In this view of the case the merchants of the village in question are wise in getting together and adopting plans on which they can work in harmony for the promotion of the well being of the community as a whole.

The refusing to sell on credit is not to be wondered at when it is remembered that the reason for needing credit is that the farmer's ready money has gone to Chicago. If he pays cash for his goods purchased at a distance, as he must if he buys them at all, he should not complain if he is expected to pay cash for those purchased in his home market. It would not seem to be right that he hang up the local merchant for the benefit of the mail order house in a great city.

On the inception of this plan, when one of these farmers came to town with his butter and eggs, expecting to find sale for them as of old, it must have been a novel experience for him, after repeated refusals by the merchants to purchase them, to be obliged to take them back home as at one store after another he was given the polite suggestion that he send them to Chicago. He thus began to realize the position he occupied in the estimation of the townsfolk as one pursuing a course which if followed by everyone would destroy local business and deprive him of a home market for the products of his farm. As he returned home meditating on his failure to sell his butter and eggs he might gradually come to understand that in so far as he purchases his goods at a distance he sacrifices the interests of his own immediate community and must not be surprised if he has to pay the penalty. The somewhat drastic action of the united merchants of the town may be the means of making him look at the catalogue house business in a new light.

Whatever is done in connection with such a movement as referred to above there must be on the part of the local merchants a readiness to meet the requirements of the people in their territory and at prices which will compare well with those of the mail order houses. The public must not be expected to make sacrifices for the sake of the merchants. The nearby merchants must be in a position to give the people better service than the catalogue houses at a distance. The farmers must be instructed in regard to the quality of goods, the cost of freight and other matters which enter into the question and be shown that in simple matter of fact way they can do better at home than abroad. This may call for the enlargement of stocks, a careful study of the catalogues, the adoption of new measures and the putting into business generally of a life and aggressiveness which have not always characterized it. The merchants in the town referred to above, whatever may be thought of their methods, are certainly entitled to commendation for the earnest and united manner in which they take hold of the problem which confronts them. It is for other merchants to consider the subject in a similar practical spirit, always remembering that the efforts to diminish the business of the catalogue houses is to be coupled with positive and enthusiastic efforts to increase their own.

Condition of Trade.

The trade of the country is in full movement and very active. Merchants and manufacturers find themselves occupied in taking care of the business which comes to them in natural course without the solicitation which is often necessary. At the same time it is a season when trade questions in regard to the extension of business are naturally receiving attention and there are many evidences of enterprise and growth on the part of both producers and distributers of goods. Manufacturers are in many lines getting unpleasantly behind their orders, but with the additions which have been made during the past few years in their manufacturing facilities they are in a position to turn out great quantities of goods to meet the demand which in some lines is almost unprecedented. Difficulty in securing goods in certain lines is, however,

causing some inconvenience. Prices generally are decidedly strong and a good many advances more or less important on one line or another are from time to time announced. Holiday trade and season goods are commanding the attention of the trade to a good degree, but other lines, including Builders' Hardware, Tools, House Furnishing Goods, &c., are in active request. Building interests are especially active and supplies and material connected therewith are in large demand. Delays in transportation continue to inconvenience both manufacturers and merchants. There is thus little more than the familiar record of exceedingly prosperous times and large and, it is to be hoped, profitable business in all branches of the trade.

Chicago.

The slight slackening in demand which is noticeable in the Western Hardware trade, especially for staple goods, is seasonable, and in recent years set in much earlier than this year. The unusual prosperity of the country and the continued open weather have had much to do with the tremendous record made during the month of October, and during the first ten days of November the demand almost equalled that of the same period in the previous month. In the absence of the heavy demand for staple goods, jobbers report the receipt of large orders for the holiday trade and heavy shipments will now begin to go forward from jobbers' stocks of this class of goods, which they laid in some time ago in anticipation of this heavy movement. Demand for Wire products generally keeps up unusually well and the indications are that an effort will be made by the independent Wire interests to advance prices. On the other hand, the leading interest is opposed to any advance at this time, but it is possible that the independents will endeavor to secure at least an advance of $1 over the present basis on account of the higher prices prevailing for raw material. It is also reported that an advance in Black Sheets is not at all improbable and this has been foreshadowed in the market in the past few days through the withdrawal of some low quotations which have been recently made. Manufacturers of Stove Bolts have withdrawn prices in the last few days, which would indicate that higher prices are to be named and that an effort will be made to overcome the demoralization in this market. Notwithstanding the stringency of the Eastern money market, Western jobbers are almost unanimous in reporting that collections are up to the normal average at this season of the year. There seems to be no abatement in the demand for Stoves and accessories and belated buyers continue to come into the market with large orders for immediate shipment. The fall Stove trade has made a record and stocks generally in the hands of both jobbers and manufacturers are pretty well cleaned up.

NOTES ON PRICES.

Wire Nails.—With unchanged prices well maintained and an active demand both in the form of new business and specifications on contract orders the market is in a satisfactory condition. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads to jobbers	$1.80
Carload lots to retail merchants	1.85

New York.—The demand continues unusually brisk for the season and some jobbers are behind their orders on account of broken assortments. The mills are shipping promptly, but jobbers' stocks become depleted in assortment before they are aware of it. The competition of jobbers results in irregularity of prices. Regular quotations for small lots from store are, however, $2 to $2.05, base.

Chicago.—A conference of Wire manufacturers was held here November 20. Trade conditions were fully discussed and some of the independent manufacturers in attendance were strongly in favor of advancing prices $1 a ton. The leading interest, however, has decided to maintain prices on the present basis, despite the present activity in the Wire and Nail trade, and prevailing quotations were continued. As a result of this conference a better understanding has been reached regarding differentials and freight allowances in certain disputed territories which in the past have at times made it appear that prices were not being firmly maintained. All of the manufacturers are carrying a large amount of business on their books, greatly in excess of that at this time last year and Wire prices throughout the entire list are being firmly maintained. Demand for Wire Nails continues heavy considering the season, and jobbers and consumers who placed large contracts some time ago are sending in heavy specifications. Quotations are unchanged, as follows: $1.95 in car lots to jobbers and $2 in car lots to retailers, with an advance of 5 cents for less than car lots from mill.

Pittsburgh.—General conditions in the Wire Nail trade continue very satisfactory to the mills, new demand being quite active and specifications coming in very freely on contracts. Some of the mills favor an advance in prices of Wire Nails, but this will hardly be done before the first of the year at least. The market continues very firm. We quote Wire Nails at $1.80 in carloads to the largest jobbing trade and $1.85 in carloads to retail merchants, f.o.b. Pittsburgh, plus actual freight to point of delivery, terms 60 days, less 2 per cent. off for cash in 10 days.

Cut Nails.—A meeting of the Cut Nail Association will be held on November 28. No agreement was made at the last meeting as to selling price but results have been satisfactory, as the market has stiffened since that time. Some mills are full of orders and are refusing to accept more business at present. Specifications on contracts are being received at the mills for more liberal quantities than new business amounts to. Quotations are as follows: $1.65, base, for carload lots, f.o.b. Pittsburgh. Iron Cut Nails for delivery at Pittsburgh, Buffalo and all points west of these cities are held at $1.75, base, in carload lots.

Chicago.—The demand continues fair and quotations are firmer and on a somewhat higher basis than in some of the other large centers of the country. This is probably due to the large orders recently placed by the railroad and car interests. We quote Steel Cut Nails at $1.82½ to $1.85, Chicago, and Iron Cut Nails at an advance of from $1 to $2 a ton.

Pittsburgh.—There is a fair amount of new business in Cut Nails, and with liberal specifications on contracts the mills have about all they can do. Consumption of Cut Nails does not seem to keep pace with that of Wire Nails, and it is evident that capacity is larger than consumption. We quote Cut Nails $1.65, base, in carload lots, f.o.b. Pittsburgh, an advance of 10 cents per keg being charged for Iron Cut Nails.

New York.—Demand is fairly good and about in the usual proportion to that for Wire Nails. Prices are irregular owing to competition. Regular quotations for small lots from store are, however, on the basis of $1.90.

Barb Wire.—The larger portion of business now being received by the mills is in the form of specifications on contract orders. New orders are comparatively light. The market is firm. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$1.95	$2.25
Retailers, carload lots	2.00	2.30
Retailers, less than carload lots	2.10	2.40

Chicago.—While specifications on existing contracts are heavy current business continues comparatively light and a further falling off in demand is anticipated until the first of the year, when a large interest will begin to place contracts for the spring trade. Quotations are being firmly maintained as follows: To jobbers, Chicago, car lots, Painted, $2.10; Galvanized, $2.40; to retailers, car lots, $2.15; Galvanized, $2.45; retailers, less than car lots, Painted, $2.25; Galvanized, $2.55; Staples, Bright, in car lots to jobbers, $2.05; Galvanized, $2.35; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.— Current demand is rather light, but specifications on contracts placed some time ago are heavy and the large trade is urging prompt shipments before the weather breaks. The mills continue to report a scarcity of cars, which is interfering seriously with shipments. We are advised that official prices are being firmly held. We quote Painted Barb Wire at $1.95 and Galvanized at $2.25 in carload lots to the large jobbing trade, with the usual advance of $1 a ton to retailers in carload lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in 10 days.

Smooth Fence Wire.—Specifications on contract orders are being received by the mills for quantities in excess of the shipments being made. Current demand is light. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.65
Retailers, carloads	1.70

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12 & 12½	13	14	15	16
Annealed	Base	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago.—Specifications continue greatly in excess of mill shipments and deliveries continue to be further deferred. Practically all of the heavy buying was done some time ago, current business being notably light. Quotations are well maintained, as follows: $1.80 to jobbers, f.o.b. Chicago, in car lots, and to retailers, car lots, $1.85.

Pittsburgh.—Specifications on contracts are very heavy, especially from Fencing manufacturers, who have very large contracts on their books and are using an enormous tonnage of Fence Wire. The tone of the market is firm, and it is stated that official prices are being rigidly held. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.65
Retailers, carloads	1.70

The above prices are for base numbers, 6 to 9.

Table Cutlery.—For several years the Association of Table Cutlery Manufacturers has been in existence and has practically regulated the prices of common Knives and Forks, pursuing a conservative policy and maintaining reasonable prices, while at the same time giving the jobbing trade adequate protection. The association expires by limitation on December 1 next and it is probable that it will not be renewed. There has been in this market the development of some outside competition, which received encouragement from the jobbers, while at the same time there have been some irregularities in the matter of prices within the association. As a result of the condition of things thus developed the trade are confronted with an open market in which it is not unlikely that lower and, perhaps, irregular prices will be developed, inasmuch as some of the manufacturers will be likely to establish direct relations with the retail trade, who under the arrangement about to terminate were left to be taken care of by the jobbers.

Chain, Coil, Trace, &c.—An advance of $3 a ton has been made by the associated manufacturers in the prices of Coil Chain, and a similar advance made also in Traces and Fancy Chains, which are quoted from 5 to 7½ per cent. higher than heretofore. The condition of the Iron market and the heavy demand which is made upon the manufacturers is the reason for this advance.

Augers and Bits.—The market for Augers and Bits continues in general steady and without material change in prices. Some irregularity is, however, introduced from the fact that in some cases the old list is used instead of the new, which is materially higher. The jobbing trade also have good stocks of these goods, which were purchased prior to the going into effect of the present prices.

Pump Chain.—The agreement between the manufacturers of Galvanized Pump Chain has terminated and the market is now an open one, with lower prices. In a general way it is represented by the quotation of 4 to 4½ cents per pound to the retail trade.

Bolts and Nuts.—The market for Carriage and Machine Bolts and also for Hot Pressed and Cold Punched Nuts continues strong. No slackening is reported in the demand for these commodities and many plants are said to be running considerably behind their orders. At the manufacturers' monthly meeting held last week the opinion was expressed that a further advance in prices could safely be declared, but a more conservative view prevailed, and the discounts announced a month ago were reaffirmed. It is not unlikely that the lowest prices now current are to be obtained from jobbers who supplied themselves at considerably better terms than are now obtainable and who are also handling increasing quantities of the rolled thread goods.

Stove Bolts.—The market for Stove Bolts, while still in a demoralized condition and characterized by the prevalence of extremely low prices, shows evidence, however, of improvement. Some of the manufacturers are refusing to meet the extreme prices named by their competitors and have within a short time been withdrawing quotations and naming somewhat higher prices. The present condition of things is unsatisfactory, but it is likely soon to better itself, as in the natural course of business extremely unprofitable prices cannot be continued indefinitely. The manufacturers, however, do not regard the outlook as very promising, inasmuch as the production of this line of goods is considerably in excess of the demand and the manufacturers do not find it feasible to work in harmony.

Wire Cloth.—The market for Wire Cloth is commanding the careful attention of buyers. Notwithstanding the reduction in price announced a few weeks ago it appears that the low figure established by the manufacturers is not in all cases maintained. The jobbers are as a rule conservative in the matter of placing orders and the result has been that some of the manufacturers are going to the smaller trade in the marketing of their product. This class of merchants, including the small jobbers and the larger retailers, are in such cases able to purchase the goods at practically the same prices as the jobbers. In this state of things it is possible that the market may develop further irregularities, but the fact that the ruling quotation is low and near the cost of production will have important influence in preventing the prevalence of lower prices.

Copper Products.—The enhanced price of Ingot Copper has caused a hardening of prices in the various lines of which it is an important constituent without there being any concerted action or advance. Some buyers cognizant of the upward tendency and knowing of the activity of the various Copper and Brass mills throughout the country are said to be covering future requirements to some extent, while manufacturers referring to the price of Raw Copper, which is now ½ cent per pound higher, equivalent to approximately 3½ per cent. advance, say that further increases, if they should occur, would necessitate higher prices for Sheets, Wire, Rods, Tubes, &c. The Sheet Copper Association held its regular monthly meeting this week without altering prices, the only other association in this class of material being that pertaining to Seamless Tubes.

Sash Cord.—Common White Braided Sash Cord has been advanced 1 cent per pound. Quotations are now as follows: Nos. 8 to 12, 24 cents; No. 7, 24½ cents, and No. 6, 25½ cents per pound.

Rope.—Manufacturers continue busy supplying an active demand. Quotations are as follows: Pure Manila, 12½ cents; B quality, 11½ cents; Pure Sisal, 9½ cents; No. 2 quality Sisal, 8 cents per pound. Manufacturers of Cotton Cordage are busy, some being behind on their orders.

Window Glass.—Jobbers are reported as not anticipating their requirements to any extent, but are ordering only enough to meet current demands on their stocks. Local demand has shown a slight improvement with cooler weather. New York quotations are as follows: First two brackets, single and double strength B, 90 and 10 and 5 per cent. discount; all other sizes, single and double strength, 90 and 5 per cent. discount.

Linseed Oil.—Local business for small lots is quiet and is likely to continue so for the balance of the year. There is little doing in the way of placing contract orders as large buyers are not interested at present prices. Futures are quoted on the basis of 35 cents for State and Western Raw, for delivery up to March 1, 1906. Offers by buyers of 32½ cents have been made for large lots, which customers would not accept. The local market is not regarded as especially strong at regular quotations. New York quotations for prompt delivery are as follows: City Raw, 40 to 41 cents per gallon, according to quantity; State and Western Raw, 38 cents per gallon. Boiled Oil is held at 1 cent advance over Raw.

Spirits Turpentine.—Prices have continued to recede during the week under review, showing a falling off of about 5 cents per gallon. This has been caused partly by the lack of demand at Southern points, with consequent accumulation of receipts, and to the manipulation of the market by speculators. Buyers at this point have lost faith in the market, so that limited amount of business has been done. New York quotations are as follows, according to quantity: Oil barrels, 64 to 64½ cents; machine made barrels, 64½ to 65 cents.

WINNING TRADE FROM THE CATALOGUE HOUSES.

DURING the past summer O. M. Scott & Brother, Marysville, Ohio, got out a four-page folder which was designed especially for circulation among those who were thought to have business relations from time to time with the large catalogue and mail order houses. They were distributed to people on the rural free delivery list and also handed out at the store. One of the firm's men followed up the circulars and spent several days in personal talks with the farmers. The latter proved to be a good move, as he found that many of the people who had received the circulars had not read them.

Has Done Much Good.

The firm feels assured that this announcement of its position has done much for the house, and that the plan, if consistently followed up, cannot fail to win trade from the catalogue and mail order houses. The Messrs. Scott believe that no amount of argument is as convincing as the right prices. They have never felt that it was anybody's duty to spend his money "at home" if he could buy cheaper elsewhere. At any rate, they advise us, he isn't going to do it.

Address to the Public.

The first page of the folder contains an address to the public, from which we make the following extracts:

We have always felt that a man shou'd buy where his interests are best served, every point being carefully considered.

We want the business which you have been doing with mail order houses, but we don't ask you to sacrifice your interests to promote our own.

If we cannot make it advantageous to you to leave your Hardware money in Marysville, we do not expect you to do so.

MONEY AHEAD.

While in some instances there may be articles listed by mail order houses at lower prices than we are selling them, we know that, year in and year out, we can serve your interests better and make you just as low prices on your purchases, as a whole, as you can get from any mail order house anywhere. Try it a few months and see if you are not money ahead.

Of course we can, at any time, get you anything you want at the same or at a lower price than that quoted in any catalogue by being put on the same basis as the mail order house—viz., cash in advance, you paying the freight. But we can give you better service than this, as shown by the following prices. On some articles you save freight by making the purchase from us; on others freight is added; in every case you examine the article before buying.

SEEING BEFORE BUYING.

Any one who has bought any amount of goods from a mail order house knows the importance of seeing before buying. If an article is not as represented, of course it can be returned, but the delay and difficulty of getting your money back is very annoying. The man in Chicago does not know you. His interests are directly opposed to yours. He cares for you or for your interests only in proportion to the amount of cash he can get out of you. Having your money, he does not expect to give it up until every effort to persuade you to allow him to keep it is exhausted.

MAKING GOODS "STICK."

Read the following clipping from the Chicago *Tribune:*

"Correspondent in complaint or exchange department of State street mail order house. Only those possessing considerable similar experience need apply; fluent writer to make goods 'stick.' Address in confidence, stating age, past connections, salary, &c., C. 363, *Tribune.*

The management of this department of mail order houses has become a profession. Men are paid large salaries to influence the purchaser to keep something he does not want or exchange it for something else he may not need. If we, or any other home merchant, sell you something not satisfactory, it is made satisfactory. Your money is returned or the article exchanged without any unpleasantness.

Comparison of Prices.

The folder quotes prices on the following goods, the catalogue house prices on the same or inferior articles being also given for comparison:

	Catalogue house price.	Our price.
2 V Crimped Roofing, painted, per square	$2.46	$2.45
The above prices include Nails, Sticks and Paint.		
2 V Crimped, galvanized, per square	3.88	3.90
With Sticks and Nails.		
2-ply Paper Roofing, per roll	.74	.75
3-ply Paper Roofing, per roll	.97	1.00
These prices include Nails and Caps added to their prices of 62c. and 85c., respectively, without Nails and Caps.		
Barn Door Track (old style), per foot	.03	.03
Hangers, per pair (old style)	.47	.45
5¾ barrel round end Stock Tank	4.95	6.00
12 barrel round end Stock Tank	7.05	8.25
All other sizes at same ratio. Freight on Tanks average about $1.		
No. 1 Farm Bell	.92	1.10
No. 2 Farm Bell	1.31	1.50
1 quart Pine Tar	.10	.10
½ gallon Pine Tar	.20	.20
Fence Ratchets	.03 to .04	.03
70 to 80 pound Grindstone (ball bearing)	3.45	3.50
Knocked down 25 cents less.		
6-gallon Barrel Churn	2.40	2.60
5-gallon Dash Churn	.76	.75
10-gallon Cream Separator	4.30	4.25
No. 12 Enterprise Sausage Grinder	2.20	2.25
No. 22 Enterprise Sausage Grinder	3.60	3.65
6-quart Enterprise Lard Press	4.15	4.25
8-quart Enterprise Lard Press	5 25	5.25
25-pound Scoop Scale (family)	.98	1.00
25-pound Platform Scale (family)	.85	.90
Polished Sad Irons, set	.72	.75
Iron Wringer	1.25	1.25
Guaranteed Wood Wringer	1.95	2.00
Open Washer	2.25	2.25
10-quart Galvanized Pails	.16	.15
Stevens' Favorite Rifle	5.00	5.00
Single Barrel ejector Shotgun	2.98	3.15
Winchester 1890 repeater (22 cal.)	10.26	10.25
8-inch Mill File	.08	.08
6-inch Slim Taper	.06	.06
Good cheap Saw	.53	.50
Cheapest drop head Sewing Machine recommended by the catalogue house (with attachments)	11.70	11.50
Their sewing machine has seven drawers, ours has five, which is all you will need. A ten-year guarantee with our machine.		
Cheapest Bicycle	10.75	11.50
Morgan & Wright double tube Tires	4.50	4.75
Disston D8 Saws	1.35	1.35
Smooth Plane No. 4	1.46	1.25
Jack Plane No. 5	1.64	1.45
Our Planes have extra heavy bit.		
Yankee No. 36 Screw Drivers	1.09	1.15
Russell Jennings Bit, ¼-inch	.18	.20
Russell Jennings Bit, ½-inch	.29	.30
Other sizes in same proportion.		

This comparison of prices is followed by a few remarks which conclude the circular, as follows:

We list only a few articles from our Tool department.

We sell other standard Tools in the same proportion.

We feel sure that we are safe in making the assertion that in nearly every instance you will find any article sold by us to be superior in quality to the same kind of article sold by a mail order house.

The reason is apparent. Their buyer insists that a lower price be made each year on the article with which a manufacturer is supplying them.

This being done, the result is that in order to make his profit the manufacturer cuts quality; naturally an article which was of good value originally is reduced to a point where, as far as durability is concerned, it is of small value to the purchaser.

B. F. Harrison has opened a Hardware, Stove, Paint and Sporting Goods store at Bremerton, Wash.

MANUFACTURERS AND JOBBERS.

BY FRED B. ELLSWORTH.

OLD methods and ideas do not predominate in this enlightened generation. This is especially applicable to the relations existing between the manufacturer and jobber. There was a time when the manufacturer transacted all his business through the medium of the jobber. So long as this condition existed and the manufacturer felt that he was getting his share of the business the relationship was all that could be desired.

When the Jobber Lost Control.

But there came a time when the jobber lost control of certain desirable trade, for instance the railroad trade. Previously the railroads bought many lines of goods exclusively through the jobber. As the railroad business increased and expanded enormously the purchasing agents, with a keen eye to business and the interests they represented, began to eliminate the middleman and buy direct from the manufacturer.

Good Business Judgment.

This move on their part was not only rational but consistent with good sound business judgment. As a result of this new condition competition among the manufacturers was increased and the margin of profit in many lines, having already been very much reduced, it was simply an impossibility under normal conditions for a manufacturer to secure the railroad trade through the jobbers; absolutely none whatever when other manufacturers were soliciting the business direct.

Some Exceptions.

Under what circumstances, then, would a jobber be most likely to procure this business? At intervals some isolated manufacturer, being compelled to sacrifice his stock, might quote a jobber a price that would enable him to obtain it; or when a manufacturer makes a certain line of goods as a side issue he often sells such a line at little or no profit to secure other desirable business from the jobbers. The same thing sometimes applies to the jobber in his dealing with the railroads. A manufacturer might quote him a certain price and the jobber quote the same to the railroads and be willing to turn the goods over without a cent of profit in order to secure their orders for other things on which he could make something.

Recognizing a Condition.

On the other hand, a manufacturer may at times have an advantage over others in being able to procure his material for less money, thus enabling him to quote lower prices than his competitors and secure the business through the jobber in that way. Most of the jobbers are fair minded and liberal enough to take a philosophical view of the situation. They do not blame the manufacturer for the course he pursues in order to protect his own interest. There are among them, however, quite a few who seem to find it impossible to bring this within the range of their business vision or to reconcile themselves to the new order of things. They feel that a great injustice has been done them by the manufacturer. In other words, "You can't play in my yard; I don't like you any more. You can go and play in the railroad yards and I hope you'll be killed." That is really the substance of it, and among some there is evinced toward the manufacturer a feeling of animosity and contempt which is anything but commendable.

AT the annual convention of the National Wagon Manufacturers' Association, held in Chicago November 16, a majority of the delegates present were in favor of raising the price of many Farm and Mountain Wagons because of the increased prices which must now be paid for hickory, ash and other hardwoods used in wagon making. No definite action, however, was taken. The association represents about 90 per cent. of the manufacturers of Farm and Mountain Wagons in the United States. Officers were elected as follows: President, W. A. Rosenfield, Moline, Ill.; vice-president, B. M. Blount, Atlanta, Ga.; secretary, E. W. McCullough, Chicago; treasurer, Walter Schuttler, Chicago.

JOBBERS' SPECIAL BRANDS AND CATALOGUE HOUSES.

LETTER FROM A WELL-KNOWN MANUFACTURER.

To the Editor: Apropos of the catalogue house question, we as manufacturers who have recently decided not to sell the catalogue houses have received a number of letters from retail Hardware men stating that they do not wish to buy any article in our line which is advertised in the catalogues, but also stating that they are unable to confine their purchases to the goods of those who do not sell the catalogue house because the jobbers frequently have their private brands on these articles and the retailer is unable to tell what manufacturer makes them. They ask our advice about the matter.

As we have received quite a number of these communications we take this method of answering them to the whole trade in general as giving our views on this subject:

If any retail Hardware merchant does not wish to purchase brands made by manufacturers who sell the retail mail order houses he should not buy any jobbers' private brands, for the following reasons:

First—When the retail merchant buys a jobber's special brand he may be buying the product of the very factory that is supplying the catalogue houses. He cannot find out where the jobber's brands are made and his efforts to combat the catalogue house competition are futile, because the very goods that he buys as the jobber's special brands may be the same goods under another name that are being advertised in the catalogues.

Second—If he buys a jobber's private brand he has to pay that jobber's price for it, because no other jobber can sell that brand. He has no open market in which to purchase, but is strictly up against a close monopoly. On the other hand, if he buys some well-known factory brand which is not sold to the catalogue houses he has an open market in which to purchase the goods, as all the leading jobbers handle them and he has some competition in his purchases which enables him to buy well, and goods well bought are half sold.

If the 20,000 retail Hardware merchants of the United States were to adopt these views and carry them out we think the catalogue house question and the private brand question would soon be relegated to the rear.

MANUFACTURER.

DEATH OF HENRY SEARS.

HENRY SEARS, once the head of the Cutlery firm of Henry Sears & Co., Chicago, died recently at San José, Cal., at the age of 90 years. Mr. Sears was born in Sandersfield, Mass., August 3, 1815, remaining on the old homestead until 1852, when he removed to Rockford, Ill. At the latter place he established himself in the manufacture of Cutlery, and in 1865 a branch house was established in Chicago, at 112-114 Wabash avenue, under the firm name of Henry Sears & Co. Mr. Sears continued in business until 1883, when, his health failing, he went to San José, which continued to be his residence until his death. He was held in the highest esteem by all with whom he was associated and was noted for his unswerving honesty. He is survived by two children, Mrs. George A. Scaly and Mrs. R. S. Thompson.

BUILDING AND ROOFING PAPERS.

F. W. BIRD & SON, East Walpole, Mass., and 120 Liberty street, New York, have just issued a 24-page booklet entitled "Practical Farm Buildings—Plans and Suggestions." It is copiously illustrated with diagramatic plans and outlines of buildings for a great variety of purposes, especially on farms, and in the back are illustrations of finished buildings covered or lined with some of the various building papers and roofings made by this concern. The book will be sent on receipt of a 2-cent stamp to cover postage. The firm's line includes such trademark goods as Neponset insulating paper, red rope roofing and sheathing and black water proof paper, Florian sound deadening felt, Ko-Sat insulating paper and Paroid Roofing in one, two and three ply. The

Paroid is a ready roofing, put up in rolls 36 inches wide, containing 100 and 200 (net) square feet, the Neponset building papers being the same width in rolls of 100, 250 and 500 square feet.

AUSTRALIAN NOTES.

FROM A SPECIAL CORRESPONDENT.

THE Hardware trade of late has been in a rather backward state, due perhaps chiefly to the backward season and to the further fact that in spite of heavy rains round the coast a large proportion of the wheat growing lands of Australia are even yet in a state of semidrought. The building trade, taking Australia as a whole, seems to be moving ahead briskly, although since our population is not increasing it is rather curious to understand who is going to tenant the new houses springing up around each of the principal cities. Implement makers at this season of the year are naturally very busy.

The International Harvester Company of America has announced a reduction in the price of its Harvesters. For about a year prior to March 6, 1905, the ruling price for Harvesters in Victoria was £81 cash, or £85 March 1, 1906, with corresponding prices for longer terms. As from October 7, 1905, the price has been reduced to cash at starting £70; March 1, 1906, £73; half each, March 1, 1906, and March 1, 1907, £77; a third each, March, 1, 1906. March 1, 1907, and March 1, 1908, £85. These prices work out on the company's own figures at a reduction of £12 10s. on each Harvester. A Melbourne paper devotes a special article to this reduction of prices, which it regards as preparation for a battle by which the International Company hopes to utterly strangle Australian enterprise in Harvester production.

Anthony Hordern & Sons, Sydney, N. S. W., recently opened their new "Palace Emporium." It is certainly the biggest establishment south of the line, and has imposing frontages on George, Goulburn and Pitt streets. The building covers 3½ acres of ground and is five stories high.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate.

FROM H. W. MILLER, Annville, Pa., who has succeeded J. A. Smith in Hardware, House Furnishings, Plumbing. Steam and Hot Water Heating, &c.

FROM HOLLOWAY HARDWARE COMPANY, Alexis, Ill., which has lately bought the Hardware, Implement, Stove, Wagon and Buggy business formerly conducted by T. W. Burford.

FROM JOHN P. SMITH, 493-501 State street, New Haven, Conn., manufacturer of Wire Work, Railings, Guards, Wire Cloth, &c.

FROM CLIETT HARDWARE COMPANY, INCORPORATED, Bainbridge, Ga., Hardware, Stoves and Tinware, Sash, Doors, Blinds, Paints, Oils, Mill Supplies, &c.

FROM F. C. SCHROEDER & SON, Eustis, Neb., who have succeeded F. C. Schroeder in the Hardware, Stove, Farming Implement, Paint and Sporting Goods business.

FROM THE DALAND COMPANY, INCORPORATED, 215 Essex street, Salem, Mass., which has been incorporated with capital stock of $8000 to take over the Hardware business of Fowler & Daland. John Daland, Jr., of the firm remains as the principal owner. He is the president of the corporation, Walter B. Rice being vice-president and George K. Goodhue treasurer and clerk.

FROM THE IDAHO MERCANTILE COMPANY, Rupert, Idaho, which has opened a wholesale and retail Hardware, Implement and Paint store under the management of F. L. Copening.

FROM PEER BROS., who have succeeded to the Hardware business of J. K. Peer, Jerico Springs, Mo., and will occupy a new two-story stone building.

FROM THE C. H. GOSS COMPANY, St. Johnsburg, Vt., which has been incorporated with a capital stock of $15,000 to take over the Hardware, Stove, Implement, Paint, Plumbing and Heating business of Charles H. Goss & Co.

FROM WM. SAUNDERS & SON, Winnetoon, Neb., who have bought the Hardware business of C. H. Kienow.

TRADE ITEMS.

A DECISION of some interest as relating to the question of trademarks has recently been rendered by Justice Colt of the Circuit Court of the United States, District of Massachusetts. The Capewell Horse Nail Company has since 1892 been using a pattern of small check marks on the heads of its nails and since 1902 the Putnam Nail Company has been using a similar marking on its Nails. This the Capewell Horse Nail Company regarded as an infringement on its rights, claiming that the check marks which were impressed into the Nails were a trademark to distinguish its Horse Nails from those of other manufacturers, and brought suit to prevent the Putnam Nail Company from using these markings. The court, however, after reviewing the facts and law in the case decided that the checks were not adopted or proclaimed by the Capewell Company as its trademark, and that there was no unfair competition by the Putnam Company in using the checks on its Nails, as its goods are not packed or represented in such a way as to deceive purchasers in the course of trade into believing its Nails were Capewell Nails.

ANNOUNCEMENT is made under date 13th inst., by N. H. Thedinga, secretary, that the annual meeting of the Washington Hardware Association has been postponed from November 15 and 16 to November 27 and 28. The meeting will be held at Seattle,

NEWMAN CLOCK COMPANY, Chicago, Ill., manufacturer of Watchmen's and other employees' Clocks, has recently shipped a large quantity of its product to Russia. Mr. Newman visits the country of the Czar periodically and has only recently returned from a trip during which he visited St. Petersburg, Moscow, Warsaw, Riga, Reval and also Helsingfors on the Gulf of Finland. Mr. Newman expresses very optimistic views concerning Russia's future and believes it is destined to be one of the great manufacturing countries of the world. His company has built up quite a business there in Watchmen's Clocks, which it is expected will show constant increase.

WALLINGFORD MFG. COMPANY, Wallingford, Vt., has recently completed the equipment of a plant for manufacturing Forks, Hoes and Rakes. The modern machinery which has been installed includes a Brown-Corliss engine and water wheel, developing 250 horse power; two Babcock-Wilcox boilers, electric lighting and steam heating apparatus, &c. The capacity of this well appointed plant will be 250 dozen Forks, Hoes and Rakes and an increased output of the company's former line of Grass Hooks, Corn and Hay Knives.

IN connection with the annual meeting of the Connecticut Hardware Association, which will be held at New Haven February 27 and 28, President Charles G. Agard of Torrington has appointed committees on hotel accommodations, banquet and luncheons, theater and entertainment, manufacturers' exhibits and reception. Manufacturers who desire to make exhibits or display samples may communicate with E. M. Walsh of R. B. Bradley Company, New Haven, who is chairman of Committee on Exhibits.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Wide Awake Merchandizing.

To the Editor: I have read the various discussions on the catalogue house and private brand questions, and wish to state that the former problem can be easily handled if gone at properly. In certain respects the jobber is as bad as the merchant who wanted to charge $1.50 for a 10-foot length of Gutter, but remembered that 15 cents a foot was the price put up and 3½ cents was paid for it at the catalogue house. Then it is possible that one may have been 27 gauge and the other 30 gauge.

MISTAKES OF SOME MERCHANTS.

It must be admitted, however, that some merchants want 100 per cent. and over on almost everything, which is radically wrong. I have often bought items that cost $2 to $3 per gross in gross lots, and many other merchants could buy that way if they so wished and be none the poorer, but no; they buy one dozen or two dozen, and of course the jobber says 40 cents a dozen or thereabouts. I told the salesman when he quoted such a price that it was out of question; well, he said, he had to charge for the extra time, which is true to a certain extent. When I said, "Give me a gross price," well, he cut it in half. Hammers, Saws and such Staple Goods

MUST ALWAYS BE SOLD CLOSE,

no matter where it is, and such items should be handled in that light; but, no, some say; "If it costs us $4 a dozen 60 cents is a right price."

When we first carried Hardware everybody spoke of a certain catalogue house. Now we rarely hear of it, and, in fact, we bring its name up more than our customers do, because we get one of its catalogues when issued, study it, and know whereof we speak. Let every merchant do it, and not be continually croaking over hard times ahead. Take the average Hardware merchant throughout the country, and on what is he posted as to market quotations? On Nails, Barb Wire, Sheet Iron, and very few other items. He feels that if he pays 50 cents he must ask 80 cents to $1 for the item, or even more; or else he goes to the other extreme and sells it for 50 cents just for spite.

OUT OF THE RUT.

The writer delights in visiting any Hardware store, especially an up to date one, and never misses an opportunity to go through one, even when away on a vacation, just to learn methods both as to selling and also as to how to improve the appearance of the store he is interested in. What many people need is a good jerk to get them out of the rut. ILLINOIS.

Honesty in Business.

From a Hardware Merchant: One of the improvements that I have noticed in the Hardware business is the steady increase in the number of buyers and salesmen who buy or sell by an intelligent and industrious effort rather than by false statements. We soon learn that we cannot form a belief in the truth of the statements of the latter kind of a buyer or salesman, and then he pays for it.

HENRY DISSTON & SONS, Philadelphia, have decided to enlarge their Canadian plant at Toronto, Ont., and have recently bought adjoining property for the erection of new buildings. The company will manufacture for the present such goods as are termed mill goods, comprising Circular Saws, Band Saws, &c. This product will be developed in the future as the trade increases.

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ASHEVILLE HARDWARE COMPANY'S INVENTORY METHOD.

THE inventory system employed by the Asheville Hardware Company, Asheville, N. C., not only provides an accurate record of stock but leads to many practical improvements of permanent value. Just before the commencement of the work

A Circular Letter.

is issued to each member of the force outlining the plan to be followed out, containing general and individual instructions as to division of labor, hours to be devoted to certain work, &c., and urging the importance of personal thought and judgment in securing the best results. This letter is supplemented by a meeting in which all matters referred to may be talked over and further suggestions or inquiries made.

Care is taken that the work of inventory may go on with the least possible disturbance to the general routine of business. After setting the date for beginning the work a schedule is made providing that one man each day may be entirely free from stock taking, except as he may answer verbal inquiries, so that his entire time may be devoted to waiting on customers. Whenever there is an overflow of customers he can ring a bell which will bring assistance from the office. No work on inventory is expected from any one during the daily rush hours between 12 and 2.30. Each evening those who are writing stock sheets stop at 5 o'clock so that the goods they have taken during the day may be priced before closing. Goods which have advanced are inventoried at their approximate cost; those which have declined at the lowest market price.

Division of the Work

is arranged on the natural basis of location, members of the force receiving their assignments as follows:

A Show cases.
B Top ledge, right hand store.
C Top shelves, right hand store.
D Bottom shelves or drawers, right hand store.
E Counters, right hand store.
F Top ledge, left hand store.
G Top shelves, left hand store.
H Bottom shelves or drawers, left hand store.
I Samples in center of store.
J Goods under counters, center of store.
K Right hand side, wareroom.
L Left hand side, wareroom.
M Center of wareroom, including goods hanging up.
N Third floor.
O Front cellar.
P Back cellar.

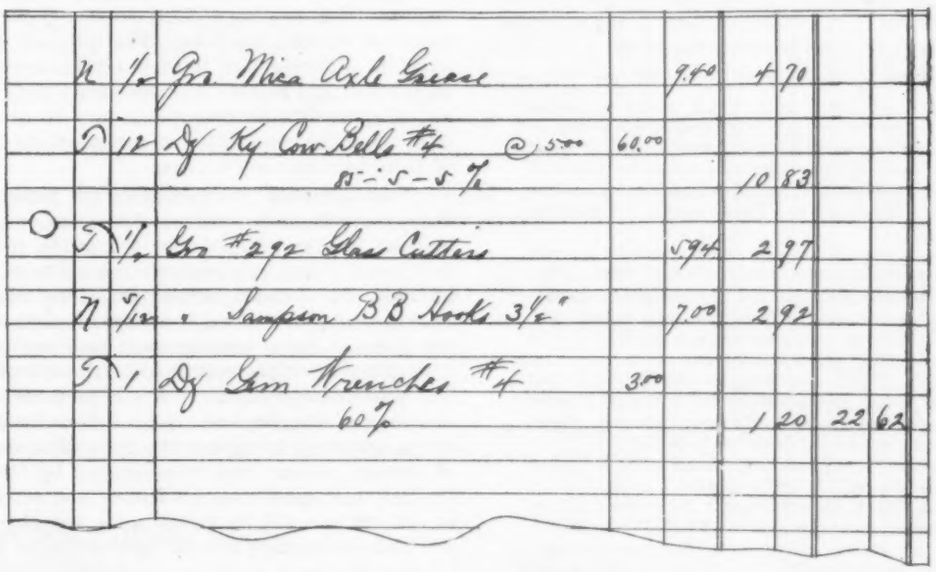
Those working in the warehouse or warerooms where heavy and bulky goods are stored are instructed to employ any outside laborers who can be used to distinct advantage. A little added expense in this direction is believed to be economical in the end.

On the day before that on which the inventory is to be based special provision is made for taking complete account of certain items, leaving off work on all other classes of stock. These include:

1. Nails, both kegs and bins.
2. Horseshoes, kegs and bins.
3. Loaded shells, full cases and broken lines on shelves.
4. Shot, cases in front and full bags in rear.
5. Powder, canteens in front and magazine outside the store.
6. Powder in magazine in the country.
7. Machine needles.

Goods Sold During Stock Taking

are kept track of in the sales books which are kept both for cash sales and charged items. When a sale is made from goods which are tagged to show that they have been inventoried the entry in the sales book is marked T (taken); in the opposite case the entry is marked N (not taken). Then all goods sold which have been taken before the date on which the inventory is based are deducted from the gross amount of the inventory, while all goods not taken are added to it.


N 1/2 Gro Mica Axle Grease 9.40 4 70
T 12 Dz Ky Cow Bells #4 @ 5.00 60.00
8-5-5 %
10 83
T 1/2 Gro #292 Glass Cutters 5.94 2 97
N 5/12 " Sampson BB Hooks 3½" 7.00 2 92
T 1 Dz Gem Wrenches #4 3.00
60%
1 20 22 62

Body of Inventory Sheet Filled Out.

The Blanks Used

are the ordinary sheets for writing up orders, one of which, partially filled out, is shown herewith. In the circular letter issued before inventory is begun the following instructions are given for handling these sheets:

> Do not write on the two top lines of any sheet.
>
> Do not write on the two bottom lines of any sheet.
>
> At the head of each sheet indicate the location in the store.
>
> Be sure that the space of one line is left between items of different kinds or different items of the same kind of goods. For instance, there should be a line left between Flat Head Bright Screws and Flat Head Brass Screws or other goods. Then, again, No. 7 Hand Saws and D8 Hand Saws would take a different discount, and a line should be left between them.
>
> Be careful that all goods of a certain kind fall under each other. For instance, if No. 11 Chest Handles were in one row of shelves and No. 12 in another the goods should be rearranged so that all Chest Handles are thrown together, and the inventory of Chest Handles all be in sequence. This is very important for the proper arrangement of the inventory.
>
> Leave all stock in absolutely clean condition, moving goods from where they are stored and sprinkling and sweeping underneath. Let's have a nice, clean store as far as the corners and out

of the way places are concerned after our inventory is done. It is a very good plan to have with you a box of damp sawdust for sprinkling in shelves or bins and then dusting out or a damp cloth to wipe them out. This will do away with much of the dust floating around the store and will add a good deal to your comfort in working.

Where two or more boxes have been opened one of the boxes should be filled. For instance, if one of the boxes of Padlocks has seven in it and another one eight, make one of the boxes a full dozen, leaving the other with the remaining three in it. Do not carry this matter too far and throw away boxes which might be used. It is not a bad plan to have an empty box with the proper number on it along with stock for use where some one buys less than a package.

Be careful in going over stock to see where you think it advisable to oil certain goods. For instance, Cross Cut Saws, Circular Saws and other things which you know will be liable to suffer from rust should receive as you go over them a slight coating of oil.

Suggestion Book

Each employee is furnished with a book in which to enter suggestions to be brought up after the inventory is complete, unless the matter is so important as to claim immediate attention. This book affords a place for any ideas that might tend to improve the store, but special attention is directed to the following considerations:

A *Wants.*—Under this head make a notation of all short items for which orders should be placed. At the end of each evening transfer from this book such items only as should be ordered immediately, in such cases marking out or checking off on your book the items added on general Want Book.

B *Goods which should have sample boards made for them or some better means of display devised.*—Under this division simply make a memorandum of goods and after inventory is entirely completed and at our convenience later we will properly provide some display.

C *Goods which are bad stock or odds and ends.*—As in the above case, simply make a notation of these and we will afterward go over them.

B *Goods which should be marked or have additional lists made or prices corrected.*—Under this head you will simply make a notation of where you think prices should be corrected or where goods are not marked and should be marked, or where other lists besides the one in the book in the front of the store should be put near the stock.

Assembling the Sheets.

Each member of the force puts his name on all inventory sheets that he writes, numbering them consecutively, so that any omission may be immediately discovered and traced. They are then collected in a permanent binder, extended and footed. In the back of the book thus formed blank sheets are provided for bringing forward the footings from the preceding pages, and here the grand total of the inventory is shown.

TRADE ITEMS.

J. D. WARREN MFG. COMPANY, Chicago, Ill., through the installation of new machinery made especially for it, is able to announce a reduction of 15 per cent. in its prices published September 1, 1904. In accordance with the new scale Warren Oak Cabinets, Bases and Counters are made at prices for each section as low as $1.50, $2, $2.50, $3, $4 and $4.50 per lineal foot. Oak Drawer Cabinets for Hardware and Bolts come at $3.50 and $4.50 per lineal foot, the latter price covering such popular styles as Nos. A2613 and A2617. Oak Sliding Glass Door Display Wall Cabinets, including A 2140, referred to as a very practical pattern, are $4.50 per foot. The company considers that the publication of this reduced price-list at a time when lumber is advancing and the company's capacity is being taxed speaks well for its business methods and its avowed purpose to give merchants the benefit of its 12 years' experience in studying costs and perfecting machinery for the manufacture of Hardware shelving. It is asserted emphatically that the reductions are not effected by any sacrifice of the good qualities in material or workmanship, which are held paramount to price.

JOHN P. SMITH, formerly of Edward F. Smith & Co., manufacturers of Wire Goods, has started a similar business on his own account at 493-501 State street, New Haven, Conn., where he has secured floor space of about 5000 square feet, and has already ordered all the machinery required at present. He will be in active operation within two weeks.

THE NATIONAL HEATING APPLIANCE COMPANY has recently been incorporated under New York State laws with a capital stock of $15,000, fully paid up. The company will manufacture the Shoals Fuel Saving Attachment for warm air furnaces and stoves, operating its own plant. Offices have been secured in the Martin Building, 115-117 Genesee street, and the manufacturing plant will be located at 3, 5 and 7 Charlotte street, Utica, N. Y. A Western office, where stock will be carried, has been opened at Room 621, Roanoke Building, 145 La Salle street, Chicago, Ill.

W. P. CLARK COMPANY, Inc., Lynchburg, Va., wholesale and retail Hardware, Stoves, Plows, Paints, Oils, Varnishes, &c., will remove January 1 from its present quarters to a new store built especially for the requirements of its own business. The company is anxious to have the equipment of its new establishment as modern as possible and solicits correspondence from manufacturers of up to date fixtures which may be used advantageously in connection with the accommodation and display of Hardware and allied lines.

THE CARBONOID MFG. COMPANY, 136 Liberty street, New York, manufactures Charcoal Sheathing, which is recommended by the company as a durable insulation that will not dry out, carbonize or become brittle, being also odorless, water proof, vermin proof, air tight, insulating and nonabsorbent. The company offers it for use under tin, slate or metal roofing, as it prevents the accumulation of moisture, prolongs the life of the roofing materials and prevents corrosion. It is also suitable for use under clapboards, shingles and between floors, and by its insulating qualities keeps out the heat of summer and cold of winter. Other uses recommended by the makers are for cold storage rooms, ice houses and refrigerators. It is put up in rolls, 36 inches wide, covering respectively 500 and 1000 square feet, in three different thicknesses.

THE THAMES ARMS COMPANY, Norwich, Conn., has changed ownership and a reorganization has been effected. President Charles F. Thayer, Vice-President James D. Robertson and Secretary and Treasurer Fred W. Carey, together with the other directors, have retired from the company, and the following officers representing the new owners have been elected: President, D. R. Harvey, Boston; vice-president, Edwin C. Harrington, Worcester, Mass.; secretary and treasurer, George F. Brooks, Worcester; directors: These officers and George W. Harvey, Boston. Messrs. Brooks and Harrington are officers of the Harrington & Richardson Arms Company, Worcester, and the Messrs. Harvey of the Iver Johnson Sporting Goods Company, Boston.

A CHANGE has occurred in the McClary-Jemison Company, manufacturers' agent, Birmingham, Ala. Mr. McClary has retired and John L. Jemison has become president and manager and W. J. Cameron secretary and treasurer.

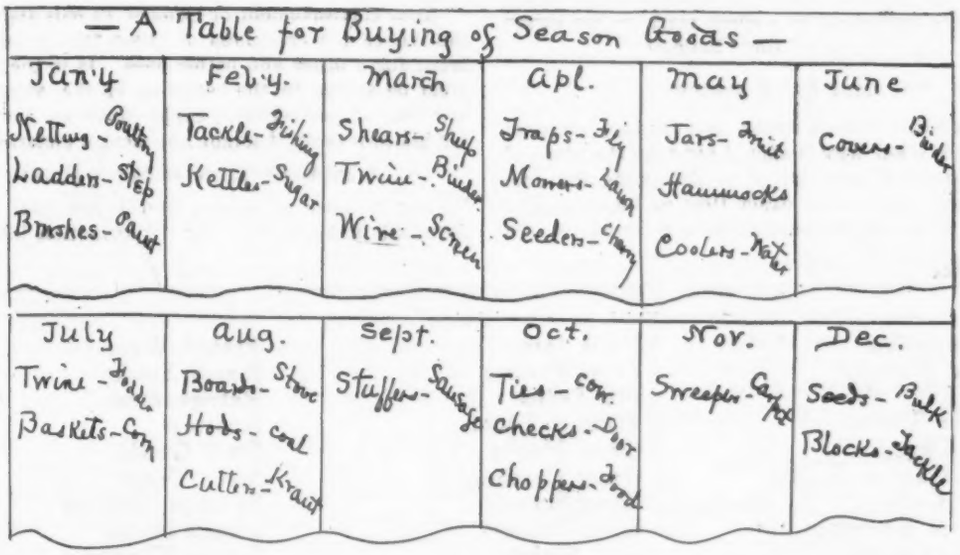
APPLICATIONS are already coming in from manufacturers for space for exhibits in the Auditorium Building, Canton, Ohio, during the annual convention of the Ohio Hardware Association in February next. It is expected that these exhibits will be an interesting as well as instructive feature of the gathering.

WITH a view to correcting erroneous reports in the daily press to the effect that the company had met with severe loss by fire the Gilbert & Bennett Mfg. Company, Georgetown, Conn., announces that the fire was confined to one wing of one of the mills, the loss being about $25,000, fully covered by insurance. The fire will in no way affect or curtail the company's production and orders will be filled promptly as heretofore.

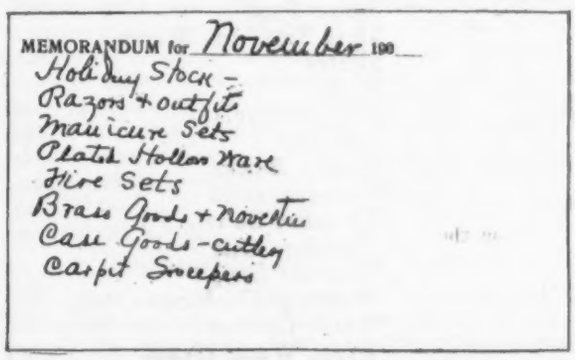
REMINDER FOR BUYERS OF SEASON GOODS.

BY H. C. W.

IN your issue of October 12 a prominent jobber suggests the possibility of a combination of effort toward helping the buyer of season goods. I sincerely trust there may be such a combination of effort, to the advantage of the retail merchant especially. The jobber as a rule uses a good deal more method and system in his business conduct than the ordinary retailer and seldom falls down in the matter of having goods in his house on time. It is the poor retailer, lacking system, who finds the season on him and the goods unbought or not yet at hand to serve clamoring customers, bringing upon him really unnecessary telegraph and express charges that he may be on a line with his neighbor.



A Season Goods Buying Table, Pasted on Heavy Cardboard and Posted Over the Buyer's Desk, with Perhaps a Stock Sheet on Reverse Side.



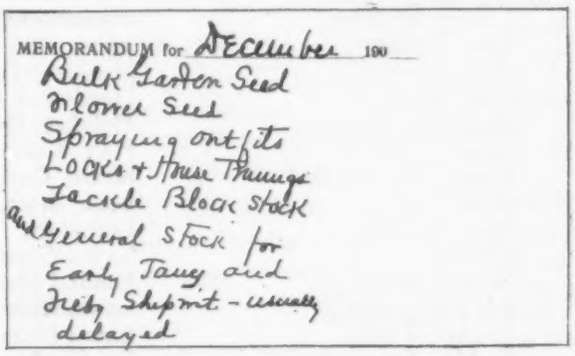
Memorandum for November Buying.

The Difficulty of a Table of Time

for purchasing that would be reliable is apparent to the average Hardware merchant from the standpoint of his location, location having very much to do with deliveries and seasons of buying of what are really season goods. A merchant in the West along many of these lines of goods is a very different proposition when considered with his colaborer in an Eastern State, or one situated near his source of supply, be it manufacturer or jobber. Then the classes of goods used vary greatly in different sections, times in which delivery can be made vary, and in goods that belong to the harvest, or where weather or season controls, the times of buying would be quite far apart, so that what is offered must be largely in the way of suggestion only, and the help, if there be any, come from applying the system or rules offered and changing the goods themselves to meet the conditions.

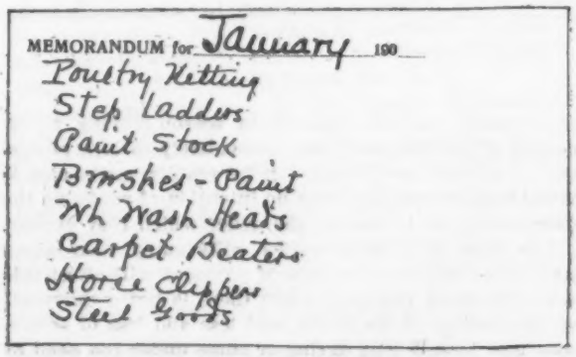
A Table Can Be Made

with but little work and be of vast help if a clever hand in the business will but apply a few hours of some quiet day toward this end. Almost any good jobber's Hardware catalogue will offer the list of goods from its index, or, better still, "Current Hardware Prices," published in every issue of *The Iron Age*, furnishes a capital list, covering nearly every Hardware article purchased during the year, and from it a fine selection of this class of goods can be made, and with a little care tabulated alphabetically, and later separated each of them into the months in which they should be bought.



Indicating December's Wants.

The writer offers herewith such an alphabetical list of what may pretty generally be called "season goods,"



Season Purchases During the First Month of the Year.

selected very largely from his own line of goods. After going over this it will not be hard to note the

Varied Lines in Various Stores

and it will be apparent to every one that with the many changes in the classes of goods handled by merchants

but a few years back some articles would have to be taken from the list and perhaps many others added.

Monthly Memorandum.

Based on this general list of such goods the writer offers memorandum slips drawn from it designating the goods to be purchased in several months and his idea would be as the purchases are made from the monthly memorandum to indicate it by a check mark on the larger list, or what might be called the "indicator."

The Card Index System

for those of us who have it works well for this purpose; indeed, I do not know why it should not take the place of any other, since we must all of us determine for ourselves to a large extent the exact time of buying. The writer takes it the correspondent above referred to does not attribute the carelessness in season buying to ignorance of goods needed, &c., but entirely to lack of system. Our own card index can be readily made and is offered in part here, but with no intention of confining the goods mentioned to the months under which they appear.

The time of buying varies with many men along many lines, and, too, the time of payment will affect this with very many retailers, when there is not a universal dating existing on the goods, and less and less of season goods now have a long dating or come under the head of futures as they formerly did. This, of course, applies much more largely to the retailer than to the jobber.

Table For Buying.

A satisfactory table for buying is also offered herewith which it seems to the writer would cover the ground if carefully made up from one's stock of goods and carefully tabulated from the invoices of other years or from the general buying book of the office. Pasted on heavy cardboard and posted over the buyer's or proprietor's desk, with perhaps a stock sheet on the reverse of the cardboard, even a table of this kind would be of vast advantage in a store of ordinary size and prevent the very many lapses that do occur on season goods and the consequent loss in profits and useless expense in "catching up."

Your correspondent of October 12 will appreciate with the writer the crudeness of these tables, but they may bring forth other and better ones. It is the masses that must be served in the bettering of the ways, and while any one of us, perhaps, could make an elaborate table for his own desk, it might not meet a general want.

A Jobber's Table Is Not a Retailer's

by any manner of means, and I feel that your correspondent in his request for "information ideas" had in view the buyer of a general retail house, since there is much of system, and thorough system, with all jobbers, and this particularly with their purchases, their buying, too, being months in advance of even the largest retailers. If he can bring out an interest and even a crude sort of system that will bring followers his kindly inquiry will not have been in vain.

Ammunition	Fruit Jars	Plated Ware
Apple Parers	Fruit Presses	Razor Stock
Axes	Fly Traps	Refrigerators
Binder Twine	Fishing Tackle	Roasters
Bird Cages	Grass Hooks	Steel Goods
Bulk Garden Seeds	Grass Catchers	Steel Traps
Brass Goods	Grass Shears	Sausage Stuffers
Butcher Knives	Glass Stock	Screen Doors
Binder Covers	Gas Stoves	Screen Windows
Binder Whips	Grain Cradles	Screen Cloth
Base Ball Goods	Hair Clippers	Screen Hinges
Barn Door Hangers	Harvest Cutlery	Scythes and Snaths
Brush Stock	Harvest Oils	Step Ladders
Churns	Hay Rope	Sporting Goods
Carpet Beaters	Hay Carriers	Sugar Kettles
Clothes Wringers	Hose Reels	Sheep Shears
Cherry Seeders,	Hammocks	Scythe Stones
Corn Baskets	Horse Clippers	Sealing Wax
Corn Knives	Husking Goods	Sections and Rivets
Coal Hods	Hardware Cloth	Slaw Cutters
Cross Cut Saws	Holiday Goods	Stove Boards
Chafing Dishes	Hay Knives	Stove Pipe
Carpet Sweepers	Kraut Cutters	Shoe Soles and Stands
Cow Ties	Lock Stock	Skates
Door Checks	Linoleum	Sleds
Elbows	Lawn Sprinklers	Snow Shovels
Flower Seeds	Loaded Shells	Sprayers
Foot Warmers	Lawn Mowers	Tackle Blocks
Fodder Twine	Lawn Hose	Thermometers
Fodder Squeezers	Oil Cloths	Thresher Belts
Freezers	Paint Stock	Thresher Oils
Fire Sets	Pump Stock	Weather Strip
Fire Shovels	Pruning Shears	Washing Machines
Floor Oil Cloth	Poultry Netting	Water Coolers
Food Choppers	Pad Locks	White Wash Heads

List of Season Goods for Year, to Be Checked Off as Purchased.

AT the annual show of the Royal Agricultural Society of Victoria recently held at Flemington, a suburb of Melbourne, Australia, D. & W. Chandler of Fitzroy had an exhibit in which American manufactures occupied a prominent place. It comprised Irrigation Pumps, Plows, Cultivators, Harrows, Corn Grinders, Garden Implements, Dairy Utensils, Incubators, &c. D. Chandler, of this firm, visited the United States some months since, combining business with sight seeing.

THE HOUSE AND THE SALESMAN.

BY W. A. MECHLING OF THE WHEELING CORRUGATING COMPANY, ST. LOUIS, MO.

A SALESMAN can hardly hope to win a very high position if his house is standing still. "Water will not rise above its own level." The larger and more progressive the house the greater the opportunity. A good house gives the salesman confidence; but a house, no matter how strong and prosperous it may be, cannot do more than start the willing salesman on the journey to success. It is then up to him to hustle—he has to sell the goods.

A SALESMAN'S REAL VALUE

to his house (as well as to himself) is his net earning power. The three most important elements (to the writer's mind) in attaining the greatest net results are: Making large sales, keeping expenses down and leaving your customers with as good a feeling toward the house you represent as you would have them feel toward yourself. A salesman must have the confidence of his customers and make them feel that they can fully rely upon what he has to say, and he should have their interests at heart as well as those of his house, for he is the connecting link that binds the two and must be the friend of both.

In selling the salesman must start with a clear conception of what is expected of him. He must not guess at his instructions. He should know his prices, his line of goods, his territory and the policy of his house thoroughly. When on the road sincerity and earnestness, combined with an absolute knowledge of the goods, will go far toward convincing a customer. Words come forcefully when they come from the heart.

ABSOLUTE LOYALTY TO THE HOUSE

represented is a positive necessity. The salesman must believe its policy is correct as well as its goods. The experienced and successful salesman will always do the best he possibly can with what he has. If local conditions seem to demand goods not on his list he should try all the harder to sell what he has.

A salesman's genius and worth are measured and quoted by his ability to create his own conditions. But bear in mind that large sales will not avail if ratio of expense is too great. Routes of travel should be closely studied to minimize mileage. This also will apply to the city salesmen in the larger cities. There are other little savings which can be effected and these trifles aggregate a large sum. Time is money also and the salesman should economize it. He should spend as little time as possible in unproductive phases of the business, such as getting from store to store in working a town and in unnecessary gossip.

HOW MANY SALESMEN STOP TO REALIZE

that goods saved is money made? A level headed, conscientious salesman will not be afraid of soiling his hands when it comes to saving his firm a loss on spoiled goods or in putting shop worn goods in a salable condition.

The good salesman will find indirect methods of making his net value to his house greater. He should make himself just as little bother to the home office as possible. If traveling he should not hold an order over from one day to the next for the sake of averaging daily sales. Orders should be sent in at once. Delay in doing so causes delay in shipments and that breeds trouble and dissatisfaction and the house gets the blame, when in fact it was the salesman's fault.

THE SALESMAN SHOULD BE WARY

about criticising the credit man for holding up his orders. He should not fly off the handle because his house has written a strong letter to a customer demanding a settlement. If the customer doesn't pay and the house doesn't collect how can it pay the salesman's salary? Moreover a customer does not respect the salesman who lacks the courage to ask for money due. It is a business proposition and can be done by using a little every-day common judgment in a courteous, businesslike manner.

In sending in special reports as to a customer's credit, character, &c., a salesman should not favor the customer at the expense of his house, nor should he hesitate or be timid to ask for references.

It is a salesman's important duty to attend promptly to all matters referred to him by the home office, and he should digest well all circular letters, for as a rule they contain the concentrated experience of practical business men. On the other hand, the salesman should give the house the benefit of the knowledge gained by his daily contact with the trade.

A salesman should always see that relations between his customers and the house are pleasant, otherwise his net value is not good. He should not overlook a customer or misrepresent either to him or the house. Care should also be taken not to sell a customer beyond his credit. Do not be an "order taker" or "salesman in name" only. Be a salesman. The country is full of "order takers."

A FOOLISH IDEA.

The salesman should not get or convey the foolish idea that he owns the trade or customers in his territory. The territory is given him in trust and he owes the house proper returns. In a sense the salesman is a partner in the business and his salary depends on the volume of business done. He should desire and glory in the prosperity of his house and work for its success as if it were his own.

JOHN H. GRAHAM & CO.'S NEW CATALOGUE.

JOHN H. GRAHAM & CO., 113 Chambers street, New York, have just issued a new loose leaf binder illustrated descriptive catalogue of the goods produced by the 39 manufacturers directly represented by them on a factory basis. The book, as published, contains 400 pages, each 11¼ x 9½ inches, the arrangement of the leaves being such that by slightly loosening two screws pages can be instantly removed or inserted, thereby permitting the book to be kept up to date. The catalogue is bound in stiff cloth covered boards and contains large assortments of Mechanics' Tools, Builders' Hardware, House Furnishing Goods and General Hardware. This concern has branch houses in San Francisco, Copenhagen and London.

THE REPUBLIC METAL WARE COMPANY.

THE REPUBLIC METAL WARE COMPANY, recently incorporated to take over the business of Sidney Shepard & Co. of Buffalo, Chicago and New York, has elected officers as follows: C. Sidney Shepard, New Haven, N. Y., chairman; Charles W. Wells, Chicago, president; James F. Foster, Buffalo, vice-president and treasurer; Sidney Detmers, Buffalo, secretary; Franklin Agge, Buffalo, manager of works.

WASHINGTON SOUVENIRS AND EXHIBITS.

Following is a list of the souvenirs distributed at the conventions of the American Hardware Manufacturers' Association and National Hardware Association at Washington November 8, 9 and 10:

AMERICAN SHEET & TIN PLATE COMPANY, Pittsburgh, Pa.: Metal clock.

S. R. DROESCHER, 79 Warren street, New York: Stick pin.

LUFKIN RULE COMPANY, Saginaw, Mich.: Steel tape in leather case.

IVER JOHNSON'S ARMS & CYCLE WORKS, Fitchburg, Mass.: Suede covered memorandum book.

DOMESTIC SEWING MACHINE COMPANY, Newark, N. J.: Ash tray.

RUSSELL & ERWIN MFG. COMPANY, 47 Chambers street, New York: Bronze letter opener.

HOPKINS & ALLEN ARMS COMPANY, Norwich, Conn.: Game counter.

SAVAGE ARMS COMPANY, Utica, N. Y.: Watch fob.

KEUFFEL & ESSER COMPANY, 127 Fulton street, New York: Tip Top steel tape watch fob.

J. D. WARREN MFG. COMPANY, Chicago: Playing cards used at the euchre.

KAMPFE BROS., 8 Reade street, New York: Fancy plate.

PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Cane in the form of a mammoth wire nail tied with red, white and blue ribbons.

SMITH & HEMENWAY COMPANY, 296 Broadway, New York: Fountain pen.
YALE & TOWNE MFG. COMPANY, 9 Murray street, New York: Silver paper cutter.
LAMSON & SESSIONS COMPANY, Cleveland, Ohio: Bicycle wrench.
UNITED STATES HOB & TOOL COMPANY, Columbus, Ohio: Card case.
MCCAFFREY FILE COMPANY, Philadelphia, Pa.: Nail file in leather case.
LAFLIN & RAND POWDER COMPANY, 170 Broadway, New York: Watch fob.
KLIP-KLIP COMPANY, Rochester, N. Y. ; Hatch & Brittin, New York, Eastern representatives: Combination nail trimmer, cleaner and file.
SIMONDS MFG. COMPANY, Fitchburg, Mass., and Chicago, Ill.: Pigskin wallet.
BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio: Pocket holder for court plaster.
E. C. ATKINS & Co., Indianapolis, Ind.: Fountain pen.
DOVER MFG. COMPANY, Canal Dover, Ohio: Miniature asbestos sad iron.
PIKE MFG. COMPANY, Pike, N. H.: Miniature of stock assortment box containing oil stone; also silver mounted oil stone and silver tray for ladies; also blotter on corundum wheel.
NATIONAL ENAMELING & STAMPING COMPANY, 81 Fulton street, New York: Miniature water pail of Royal Granite steel ware.
UNITED STATES STAMPING COMPANY, Moundsville, W. Va.: Miniature enameled ware spittoon.
PETERS CARTRIDGE COMPANY, Cincinnati, Ohio: Match safe representing shell and cartridges.
GRIFFIN MFG. COMPANY, Erie, Pa.: Cigars in fancy wrappers.
L. & I. J. WHITE COMPANY, Buffalo, N. Y.: Watch fob.
UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn.: Pigskin pocketbook.
PHILADELPHIA LAWN MOWER COMPANY, Philadelphia, Pa.: Dating stamp.
E. I. DU PONT COMPANY, Wilmington, Del.: Watch fob.
ONEIDA COMMUNITY, Kenwood, N. Y.: Sample jars of jelly; also watch chain.
WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Hat pin with head in the shape of a cartridge.
LAKE ERIE IRON COMPANY, Cleveland, Ohio: Leather coin case.
AMERICAN FORK & HOE COMPANY, Cleveland, Ohio: Memorandum tablets.
LAWSON MFG. COMPANY, Chicago, Ill.: Letter opener.
DANA MFG. COMPANY, Cincinnati, Ohio: Leather memorandum book and card case.
JOHN CHATILLON & SONS, 85-93 Cliff street, New York: Miniature scale.

A number of manufacturers displayed in their hotel suites selected samples of their goods, inviting the inspection of the jobbers. Among them were the following:

PIKE MFG. COMPANY, Pike, N. H.: Sharpening Stones in stock assortment boxes, including new razor hone assortment, Corundum Wheels and Emery Wheels. Represented by E. B. Pike, E. Bertram Pike, H. E. Smith, J. A. Winters and E. Warren Smith.
WOOD SHOVEL & TOOL COMPANY, Piqua, Ohio: Shovels. Represented by S. S. Gould, W. W. Wood, 3d, C. M. Avery and J. C. Kuske.
HORTON MFG. COMPANY, Fort Wayne, Ind.: Washing Machines.
PRITCHARD-STRONG COMPANY, Rochester, N. Y.: Prisco Lanterns.
WALLINGFORD MFG. COMPANY, Wallingford, Vt.: Steel Goods and Grass Hooks. Represented by H. B. Barden.
DOVER MFG. COMPANY, Canal Dover, Ohio: Asbestos Sad Irons. Represented by C. T. Johnson, R. F. Lund, A. S. Howe and O. A. Keyser.

RECIPROCITY.

ADDRESS BY WILLIAM M. PRATT AT THE RECENT ANNUAL CONVENTION OF THE AMERICAN HARDWARE MANUFACTURERS' ASSOCIATION.

The committee appointed by your president to attend the National Reciprocity Conference, held in the city of Chicago on August 16 and 17 last, have to report that they attended the various sessions of that convention. While not taking active part in its proceedings, because we had not been instructed by our association to do so, we were much impressed by the unanimity of opinion which found expression in the demands for a more liberal commercial policy on the part of this country in the form of a dual tariff having a maximum schedule which should be applied to all countries not giving us their most favored nation rates and a minimum schedule which should be applied to such countries as show us this courtesy.

Believing that this is a subject in which many members of this association are vitally interested, and in order that it may be freely discussed, your president has requested that I bring the matter before you. I shall endeavor to do this as briefly as possible, not making any attempt to deal with individual schedules or classifications, but rather to show the great need there is for some action which shall not only preserve our present foreign markets but give us an opportunity to extend them.

NECESSITY FOR RECIPROCAL RELATIONS.

Reciprocity, which means a mutual interchange of rights and privileges, has been criticised in the abstract and condemned in the concrete; as having a bearing on the commercial relations between individuals it is necessary to commercial success. Having been dragged into politics, it has been so mercilessly abused by both political parties that hardly a semblance of its real meaning remains. In the days of Blaine, when reciprocity was spoken of as a handmaiden of protective policy, it was assailed by the Democrats as a farce and misnomer, and when a certain element of the Republican party, realizing the country's commercial needs, attempted to use this policy for our advantage in foreign markets they have been termed traitors to the cause of protection.

TARIFF SCHEDULES TOO HIGH.

Are the great commercial interests of this country to stand idly by and allow a policy which is essential to our success in foreign markets to be mutilated in politics? Gentlemen of the Manufacturers' Association, each and every one of you who has an export trade at this time or ever expects to have one is vitally interested in this matter. No one, not even the foreign buyer, questions the wisdom of a protective tariff, neither does he object to any individual schedule which the needs of revenue or the protection of labor requires. He does object to a policy under which we desire to sell everything and take nothing. He does object to schedules which are far higher than the needs in the case warrant.

Such a tariff and such a policy, gentlemen, become a bugaboo in the eyes of our foreign customers; they consider it retaliatory and in self defense will bring into play retaliatory tactics against us. Can we afford to have this done? Is it wise to jeopardize our vast foreign trade when through prompt action it might be preserved? Will the home market consume all the goods we are able to produce? Under a beneficent protective system we have developed into a great manufacturing country. Do our manufacturing interests require the same amount of nursing at maturity that was necessary at the early stages of their career? Gentlemen, they are old enough to vote and should lift up their voices in protest against any action or inaction which threatens even in the slightest degree our prestige in foreign markets.

A BUSINESS QUESTION IN POLITICS.

Our manufacturers have labored diligently to make a place for themselves in the markets of the world; we have fought for every inch of ground we have gained. Are we to be deprived of the fruits of our labor and denied the needed help because of political pride or prejudice? Must our campaign in foreign markets weaken, become inactive or cease entirely, half of our forces be withdrawn and used at home in an effort to drag a business question out of politics? I say to you, gentlemen, that something must be done without delay; this country cannot enjoy commercial prosperity without a foreign market for its surplus products.

MAKING LOWER PRICES ABROAD THAN AT HOME.

There are two phases of this question, to which I shall for a moment ask your attention; both are economic. The first has to deal with the effects upon our manufacturing interests of the continued selling of raw material, machinery, finished goods and other exported articles at lower prices to foreign consumers than they are sold in home markets. This question is one of grave depth; it needs careful consideration; to what extent this is done I am not prepared to say; that it is of almost universal practice I have full knowledge. Carried to extremes it would give our foreign competitors a great advantage; they already have cheaper labor. If they are to have cheaper material and the advantage of equal equipment at less cost we shall find some fine morning that their hands are full of trumps and that our own cards are of less value.

FINANCIAL PROBLEM BETWEEN NATIONS.

The second of the economic phases is a financial problem as between nations. Will the nations of the world allow the trade balances to stand always in our favor? Can they afford to have their treasuries drained? Won't it be necessary for them in self protection to take steps which shall equalize the balances?

The history of an interchange of commodities between countries leads me to believe that it will not be possible for us to continue to trade in the markets for gold alone. We shall be obliged to accept certain commodities which are the products of those countries if they are to continue to trade with us.

Now this may not be a subject which the Hardware Manufacturers' Association as an association will desire to act upon, but I believe it is incumbent upon every individual member who has any interest at all or ever expects to have any interest in our foreign trade to give it serious and careful consideration.

OPPORTUNITIES FOR INCREASED FOREIGN TRADE.

ADDRESS OF O. P. AUSTIN, CHIEF OF BUREAU OF STATISTICS, AT THE BANQUET OF THE NATIONAL HARDWARE ASSOCIATION IN WASHINGTON, NOVEMBER 10.

What industry of the civilized world is to-day making the greatest advancement and the most rapid increase in its contributions to the comforts and conveniences of man the world over? Manufacturing.

What nation is making the most rapid advance in its manufacturing industries? The United States.

What group of industries among those designated as manufactures shows the highest total of its products? Iron and steel.

What single group of the iron and steel manufactures shows the largest value of products and the widest distribution of its productions to the people of the world? Hardware.

What nation is showing the most rapid growth in its exports to the consuming world? The United States.

What great group of products shows the most rapid growth in our constantly expanding export trade? Manufactures.

What great class of manufactures forms the largest item in that rapidly growing exportation? Iron and steel.

What group of iron and steel manufactures shows the largest total, the most rapid growth and the widest distribution? Hardware.

Do you wonder, gentlemen of the National Hardware Association, that I deem it a privilege to speak to you on this occasion upon a subject which is so constantly in my mind and nearest to my thoughts—the commerce of our common country?

PROGRESS IN THIRTY YEARS.

It has been a privilege to live in this country of ours during the past few decades and to note the wonderful growth of the industries of our country and the relative advance of the great nations of the world in industries and commerce, and of that world influence which comes with an expansion of commerce. The short period of thirty years has seen our agricultural production double, our manufactures treble and our exports quadruple, while our population was meantime doubling; and in that time we have also taken first place among the manufacturing nations of the world. Even in a shorter period, the single decade from 1895 to 1905, the exports of agricultural products have increased 50 per cent., the exports of manufactures have trebled, the exports of iron and steel have quadrupled and the exports of hardware as a special class have more than quadrupled.

IRON THE BAROMETER.

No barometer, it is said, offers so accurate a measurement of the prosperity of a country as that found in the production and consumption of pig iron. And, if we accept this as a measure of business and industrial activity among the leading nations of the world we find new assurances that we are outstripping the other nations in industry and prosperity. The consumption of pig iron among the great industrial nations in the period from 1880 to 1904 increased in France about 1,000,000 tons; in the United Kingdom about 2,000,000 tons; in Russia, about 2,0000,000 tons; in Germany, about 7,000,000 tons, and in the United States 15,000,000 tons, the increase in the United States in that period being more than that of all the European countries combined. In production of pig iron the growth of the United States has been equally striking and our production of pig iron has since 1900 averaged as much as that of Great Britain and Germany combined.

PHENOMENAL DEVELOPMENT.

What has been the effect of this marvelous increase in the production and consumption of pig iron and all those higher grades of manufactures produced from it? First, there came a phenomenal increase in our railways and with this a cheapening in the cost of transportation. With this cheapening in transportation came a reduction of the cost of producing the various articles which you, gentlemen, and others engaged in manufacturing are supplying to our people. With this decrease in the cost of production and distribution came not only an increased home market but also the power of manufacturing to supply a foreign market.

GREAT INCREASE IN EXPORTATION OF MANUFACTURES.

As a result of this change in our power to supply foreign markets the exportations of manufactures have trebled during the last decade, the exports of iron and steel manufactures have quadrupled and the exports of Hardware have more than quadrupled. The total value of manufactures exported in 1895 was $183,000,000; in 1905, $543,000,000. The total value of iron and steel manufactures exported in 1895 was $32,000,000; in 1905, $134,000,000. The total value of Hardware exported in 1895 was $8,000,000, and in 1905, $36,000,000.

GROWTH OF PRODUCTION.

Are we to continue in this marvelous growth in manufacturing and exportation of the finished products of iron and steel, whether under the form of Hardware or other branches of that greatest of all our manufacturing industries? The manufactures of iron and steel grew from $480,000,000 in 1890 to $835,000,000 in 1900, and if the same rate of growth has continued since that time it may be fairly set down to-day at more than one billion dollars per annum. And there is every reason to believe that this growth is destined to continue. Our supplies of raw material in coal and iron and other requirements of manufacture are far in excess of those of any other country, our facilities of transportation better and the ingenuity of our inventors and workmen unsurpassed, while our facilities for producing in great quantities and at a minimum cost seem to give assurance that the marvelous growth in production is to continue.

A HOME MARKET NOT ENOUGH.

What will be the effect of this continued and rapid increase in production of Hardware, of iron and steel, of manufactures of every class? Rapidly as our population and home demand are increasing, we must realize that our manufactures are outstripping population and even home demand in their growth. The population of the United States doubled in the thirty-year period from 1870 to 1900, but in that same period the value of our manufactures trebled, while manufactures of iron and steel and Hardware more than quadrupled. It cannot be expected that a manufacturing industry that trebles or quadruples its output during a period when population is only doubling will continue indefinitely to find a home market for all that enormous increase which is indicated by the progress of recent years.

HOW, THEN, WILL YOU MEET THIS NEW SITUATION?

Will you slow down your factories, or will you devote a part of their work to producing for the foreign market? The answer to this question you have already given,

in the fact that the exports of Hardware have grown from $8,000,000 in 1895 to practically $36,000,000 in 1905, having more than quadrupled, while general exports of manufactures were trebling and those of agricultural products were increasing but 50 per cent.

But even this exportation of Hardware, Iron and Steel and of manufactures in which we take so much pride as Americans is a mere trifle compared with our production, and with the surplus which we must expect that our factories will produce in the near future at a rate of increase which is indicated in the developments of recent years. The $36,000,000 worth of Hardware, the $135,000,000 worth of general manufactures exported must be doubled or trebled and finally quadrupled if you are to continue to expand your producing powers at the rate at which they have been expanding in recent years.

SOUND ADVICE.

And here I want to sound a note of warning to you, representatives of a great producing and distributing industry, and through you to the manufacturers and exporters of the United States generally. You must not expect that a great increase in the exportation of manufactures will be an easy task. You have rivals—busy, vigorous, experienced rivals—in the great manufacturing countries of Europe, countries with an industrial population receiving wages far less than those paid to the laboring men of the United States, and with a long and varied experience which enables them to successfully manufacture for the export trade. We take great pride in the fact that our exports of Hardware in 1905 were $35,000,000 in value; but what say you to the fact that Germany, with an area less than that of the State of Texas and a population but two-thirds as large as our own, exported in 1904 $37,000,000 worth of Hardware, and the United Kingdom, with a still smaller area and a population but half that of our own, exported in the same year $92,000,000 worth of Hardware?

WE ALSO TAKE GREAT PRIDE

in the fact that in the last fiscal year our exports of manufactures passed the $500,000,000 line. But what say you to the fact that the exports of domestic manufactures from Germany exceed our own by more than 50 per cent., and those of the United Kingdom are more than twice as great as those of the United States? Of all the branches of our foreign trade, that of manufactures is the most difficult and encounters the sharpest rivalry. Our agricultural products are demanded by the consuming world. We produce three-fourths of the world's cotton, we supply more than one-third of the meats which enter the world's international markets, and our surplus of breadstuffs is not sufficient to meet the world's demands. Our agricultural products and the products of our mines sell themselves.

IT IS IN FINISHED MANUFACTURES

that the rivalry for the world's international markets is sharpest and will continue to increase in intensity with enlarged production and increased experience among those with whom we must compete in those markets.

I say these things to you business men here and now because I am profoundly impressed with the feeling that the measure of success in the foreign markets which your manufacturing capacity will soon require can only be attained by the adoption of methods new to us, but long followed by our more successful rivals in Europe.

THE ORIENTAL MARKET.

We take pride as a nation in the fact that our exports to the Orient are at this time showing a remarkable increase, but it is a fact which we ought not to overlook that our exports to the Orient and the growth in those exports occur chiefly in two or three lines of manufacture, while in the hundred and one other lines in which our varied industries ought to participate, the market is largely in the hands of our European rivals.

The cause of our failure to participate in this great market for miscellaneous manufactures, not only in the Orient, but in many other parts of the world, lies chiefly in our unwillingness to manufacture goods in the form required by the foreign market. It is easy to say that we will educate the foreigner and lead him to accept the classes of manufactures which our own people find so satisfactory and in this we have been successful in some degree in the European countries where tastes and customs of life are similar to those of our own people, but in those markets in which climatic conditions or long established custom have created demands for articles different in form and variety from those produced for our own climate and people we are making little progress in supplying the great mass of manufactured articles imported. Your manufactures of agricultural machinery and household requirements and Yankee notions sell readily in countries whose agricultural and household methods are similar to those of our own people, but in those countries where methods long established have accustomed the people to different and often more primitive articles of daily use your agricultural implements and household requirements and Yankee notions are rejected. What is the result?

YOUR EUROPEAN RIVALS,

recognizing the fact that certain peoples, especially those of the Orient and the tropics, demand products suited to their own customs of life, stand ready to comply with those requirements and to produce in their factories the kind of goods demanded by those markets. They have long since given over the task of attempting to educate those markets up to the European or American standard, and instead have educated themselves to manufacture for those markets, to offer their goods through their own salesmen and to sell them on terms to suit local requirements. As a consequence they are getting the trade—I might almost say the entire trade—of many of those markets, while the American manufacturer who relies upon filling orders from the stock of goods manufactured for the home market is not only failing to obtain his proper share of those markets, but permitting them to pass absolutely into the hands of his European rivals.

OUR SMALL PERCENTAGE OF THE FOREIGN TRADE.

These are serious questions, which I deem it my duty to bring frankly to the attention of you manufacturers and exporters of the United States. The world's markets for manufactures call for between four and five billion dollars' worth of finished goods every year, and of this we have been supplying up to this time barely 10 per cent. In many of the countries which are large consumers of manufactured products we supply but 1 per cent. of the total importation, while our European rivals, who study the markets and manufacture to meet local requirements, are supplying 40, 50 and even 60 per cent. of the total.

It seems to me that these facts are of especial importance to American manufacturers at the present moment. They have reached in many cases the point in their history in which they are able to produce in excess of the home demand, and they should understand that the fields in which this excess must be marketed can only be successfully invaded with articles of the class required by those markets, and that the manufacturer who is unwilling to put his products into the form and method of packing required by Oriental or tropical communities and to offer them by methods common to that market will not only fail of success, but destroy the reputation of American goods and of American manufactures in those markets.

ADAPTATION TO FOREIGN REQUIREMENTS.

I have great and abiding faith in the American manufacturer and American manufactures. The demands of our growing population are rapidly reducing the quantity of foodstuffs which we can offer to the outside world, and this reduction in exportation of foodstuffs should be met by a corresponding increase in exports of manufactures. Nature has given us greater supplies of manufacturing material than are possessed by any other country, our systems of turning these natural products into finished manufactures are the best known and our workmen hold first rank in skill and energy. We have already become the greatest manufacturing nation in the world, and I firmly believe that these industries will be so adjusted as to make us also the world's greatest exporter of manufactures.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our catalogue department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made besides the brief reference to the catalogue or price-list in this column.

H. P. & H. F. WILSON, 577-579 Tenth avenue, New York: Circulars of Patent Steel Wire Bale Ties for pressing hay, straw, corn husks, moss, jute, rags, paper stock and all kinds of compressible materials. One gives a list of lengths and gauges and the other a net price-list calculated at 70 and 2½ per cent. discount.

OHIO BOLT & NUT COMPANY, Berea, Ohio: Circular price-list referring to Vulcan Annealing Putty.

TOLEDO SHOVEL COMPANY, Toledo, Ohio: Price-list of Shovels, Spades, Scoops and Ditching Tools.

WIRE GOODS COMPANY, Worcester, Mass.: Circular price-lists of Counter Display Baskets, Milk Jar Carriers, Wire Sink Brushes and Dish Washers.

F. D. BELKNAP RAPID ADDRESSING MACHINE COMPANY, 290 Broadway, New York: Catalogue of Rotary Addressing Machines, Accessories, &c.

MISSOURI ANCHOR FENCE COMPANY, St. Joseph, Mo., Catalogue No. 7, Farm and Lawn Fence, constructed with Anchor Clamps and Stays and containing price-lists, tables of information required in making estimates, &c.

F. H. & E. B. VROOMAN, Chicago, Ill.: Circulars referring to Vitreous Enameled Steel Sink Strainers.

KNAPP ELECTRIC & NOVELTY COMPANY, 511-513 West Fifty-first street, New York: Catalogue No. 16, referring to Kenko Electric Specialties, Motors, &c.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Booklet of Stevens Firearms and illustrating holiday advertisements, together with mortised electrotypes furnished gratis to the trade.

THE CORBIN CABINET LOCK COMPANY, New Britain, Conn., and 21 Warren street, New York: Illustrated descriptive catalogue entirely confined to Locker Locks. Illustrations are all actual size. The Key Locks are all so constructed that they can be furnished with a large number of Key changes, with Master Key to pass. Two styles of Locks are shown especially suitable for wire and metal locker doors. Combination Locks for lockers and a Star Point Lock for kindred uses are also shown.

GEO. BORGFELDT & Co., West Fourth, Third and Wooster streets, New York: "November Suggestions" contained in an illustrated catalogue of Glass and Pottery Novelties, Toys, &c.

THE JOHN C. JEWETT MFG. COMPANY, Buffalo, N. Y.: Catalogues relating to Refrigerators and Ice Chests lined with zinc, glass and opal glass.

MARSHALL-WELLS HARDWARE COMPANY, Duluth, Minn.: Catalogue of Sporting Goods, including Guns, Rifles, Revolvers, Ammunition, Athletic Goods, Skates, &c. Also one representing its Cutlery department, embracing Watches, Clocks, Cut Glass Ware, Silver Plated Flat and Hollow Ware, Cutlery, Toys, &c.

QUEEN ANNE SCREEN COMPANY, Burlington, Vt.: Illustrated price-list relating to Screen Doors and Window Screens.

MISCELLANEOUS NOTES.

Rainbow Steel Rods.

The Horton Mfg. Company, Bristol, Conn., is putting on the market a line of Rainbow steel fishing rods to meet the demand for lower priced goods in this line. While they are manufactured with great care and of the best material, they are not guaranteed on account of the comparatively low price. The rods are finished in dark green enamel and put up in brown canton flannel cases. The bait rods all have cork grip handles and are offered in seven lengths, from 5 to 10 feet, fitted with german silver solderless two-ring guides, german silver three-ring tops and nickel handle mountings, with solid reel seat above the hand. The No. 225 bait casting rod is made in 5, 5½ and 6 foot lengths, fitted with large german silver casting guides and large german silver mounted agate casting top. There are two fly rods, 9 and 10 feet respectively, both having cork grip handles with nickel plated mountings and solid reel seat below the hand and german silver one-ring fly top. The 9-foot rod has german silver drop ring guides and the 10-foot rod has german silver solderless two-ring guides.

Spiral Fluted Taper Reamers.

The L. L. Lord Company, Meadville, Pa., has just added to the list of reamers manufactured by it the Lord spiral fluted taper reamer, which is being made in ¼ to 2 inch iron pipe sizes.

Clark's Ash Can Truck No. 34.

The George P. Clark Company, Windsor Locks, Conn., is putting on the market an ash can truck, the frame of which is made of one piece of round steel. At the bottom the ends of the frame are bent so as to form two hooks to go under the bottom of a can. An adjustable hook slides on the handle to grip the top of the can and prevent its slipping. The truck is designed to move ash cans with ease and without soiling the clothing of the operator.

Griswold Poultry and Garden Fence.

The Dillon-Griswold Wire Company, Sterling, Ill., will put on the market January 1 a poultry and garden fence with stays 6 inches apart. The spacings between the wires will graduate from 1½ inches at the bottom up to 6 inches. No. 9 wire will be used for the top and bottom bars, No. 12 for the intermediate bars, while the stays will be made of No. 13 wire. The fence will be offered in 35, 46 and 58 inch hights, put up in 10 and 20 rod rolls.

Fans.

The Westinghouse Electric & Mfg. Company, Pittsburgh, Pa., will have a new line of ceiling and floor column fan motors on the market the coming season, both direct and alternating current. These fans will have four blades and ball bearings and be finished in black enamel and oxidized copper. The alternating current fans will be of the induction type and the direct current fans will be furnished with three-point switches. It is stated that the regular line of alternating and direct current desk and wall bracket fans will be as complete as requirements demand and the current consumption the lowest ever known for fans of these types.

Forest City Bit & Tool Company.

The Forest City Bit & Tool Company, Rockford, Ill., has made a number of additions to its line, which are shown in its catalogue G, recently issued. The new tools include ship auger car bits, ship auger machine bits, router bits and Forest City blind stile bits.

A. W. Woods, Lincoln, Neb., offers a framing chart which consists of a dial plate 3½ x 3½ inches in diameter, on either side of which is a revolving disk, one side giving the lengths and cuts for common rafters having a rise from 1 to 24 inches to the foot, also the corresponding lengths, and cuts and bevels for the octagon hip or valley and for the hip or valley resting on a right angled corner. On the other side of the disk is given the seat and plumb cuts for rafters and braces having a rise from 1 to 90 degrees. It also gives the length of sides and miter cuts for all regular polygons or the framing of timbers at any degree, and how to apply a steel square to obtain the cuts. Accompanying the chart is "Key to the Steel Square," a small book explaining the use of the chart.

Never Break All Steel Cylinder Heads.

Hemp & Co., Second street, near Chouteau avenue, St. Louis, Mo., are offering the cylinder heads shown herewith. They are each stamped from one piece of heavy sheet steel to insure true and uniform size and to avoid the annoyance of filing and fitting. The heads

Never Break All Steel Cylinder Heads.

are alluded to as light and durable, as impossible to break or crack, as weighing 75 per cent. less than cast heads and as making a material saving in freight charges. They are made in 6-inch size, japanned and packed one dozen in strong pasteboard boxes.

The "400" Kitchen Knife.

The Goodell Company, Antrim, N. H., and 10 Warren street, New York, has recently added to its line of kitchen cutlery the "400" kitchen knife, here illustrated. The blade is made from a special grade of steel, which the company uses in the highest grade of shoe knives for cutting leather, it having been noticed that this steel tempered by its process resists the action of the acid of apples, &c., and vegetables, and holds a keen edge better than any other similar material. Another important feature of the knife is an ornamental metal bolster and method of fastening the knife tang in the ebony handle, which is done by forcing hot metal under pressure inside the ferrule and handle by the company's patented process, which was originally used in connection with its cut glass handled table cutlery. The metal is forced into the handle at right angles with its length, thus filling a portion of the handle and the ferrule, the blade being

The 400 Kitchen Knife.

warranted not to come off. The blade has a cutting edge of 3⅛ inches and the knife is 7¼ inches long over all.

Wood Handle Screw Wrench.

The Vandegrift Mfg. Company, Shelbyville, Ind., is offering the trade a new wood handle screw wrench as

Wood Handle Screw Wrench.

shown in accompanying illustration. Compactness, strength and cheapness are claimed for the tool, which is made of malleable iron and machine tool steel. The lower jaw and shank is of one solid piece, having inserted therein the two steel studs. The shank is covered with hard wood parts securely fastened. The metal parts are partly bright finished and the whole is referred to as presenting an attractive appearance. The maker calls attention to the low price at which the wrenches are sold. They are made in three sizes, 8, 10 and 12 inch, open measurement, and packed six dozen per case in nicely labeled cartons of one-half dozen each, making them convenient shelf goods for the hardware dealer.

The Lightning Brace.

The Hamden Mfg. Company, Wallingford, Conn., is making the Lightning Brace, which is represented in the

The Lightning Brace.

accompanying illustration. This brace has no sleeve, jaws or spring, and is quick and easy to adjust and operate. The cam goes up over the shank and the harder the boring the tighter the bit holds. It is made of steel, bent cold. The brace has cherry head and handle, polished, and is manufactured in three sizes, Nos. 01, 02 and 03, with sweep of 12, 10 and 8 inches respectively. A special feature of this brace is the low price at which it is offered to the trade, which permits it to be retailed for 25 cents each. The company is now patenting a ratchet for use on this brace. This ratchet brace, we are advised, will be sold at a figure which will enable the retail merchant to offer it to the public at 40 or 50 cents each.

Ellis Adjustable S Wrench.

Patterson, Gottfried & Hunter, 146-150 Center street, New York, have recently put on the market the Ellis adjustable offset S wrench here illustrated. Fig. 1 repre-

Fig. 1.—Ellis Adjustable Offset S Wrench, Square Jaws.

sents the wrench for use as a regular adjustable S wrench, special attention being called to the jaws, which are designed to afford the greatest strength without being too large to operate in confined places. Fig. 2 is

Fig. 2.—Same Wrench, Showing Offset Principle.

another view of the same wrench with jaws offset to the left. This is accomplished by means of a small round head spring pin which, pulled slightly toward

Fig. 3.—Wrench with Pipe Jaw Inserted.

the person, allows the jaws portion to be swung to right, center or left, releasing the pressure on pin, causing it to catch in either of the three perpendicular square notches shown. Fig. 3 illustrates the same wrench with pipe jaw inserted, thus making the tool quickly interchangeable from a nut wrench to a pipe wrench, a valuable feature in a portable kit and for automobiling, &c. The importance of this wrench is its adaptability for working around corners, behind pipes and in many otherwise difficult and inaccessible places. There are four sizes and the jaw openings are operated by the milled edge barrel screw, the jaw capacity being the same standard as in regular wrenches, size for size. The 6 and 8 inch sizes are nickel plated. The 8, 12 and 18 inch sizes have a pistol finish. This style of wrench can be supplied in all sizes named, with either plain or pipe jaw, and in 6, 8 and 12 inch sizes with both plain and pipe jaws. All pipe jaws are pistol finished.

Loose Leaf Ledger or Book Lock.

Thomas A. Glendinning, 97 Reade street, New York, has recently patented and is now manufacturing exclusively for the William Mann Company, 529 Market street, Philadelphia, Pa., a loose leaf ledger lock as here illustrated. Mr. Glendinning was formerly for a long time promimently identified with the pin tumbler lock department of the Yale & Towne Mfg. Company. The aluminum leather covered back construction is fitted at one or

End View of Loose Leaf Ledger Lock.

both ends with a pin cylinder lock of the latest Yale paracentric type, by means of which the bookkeeper is assured that the ledger leaves are secure and subject only to his personal manipulation. Various combinations of circumstances can be met by the use of master keys and dual locks if necessary, thereby safeguarding the leaves in the binder and their contents. By having a lock at each end of the binder or back it can be made impossible to unlock it except in the presence of two individuals, who are provided with two separate and different keys. These locks are used only on the Mann Ledger, having interchangeable leaves, manufactured by the William Mann Company.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal.
Linseed, City, raw	40 @41
Linseed, City, Boiled	41 @42
Linseed, State and West'n, raw	38 @..
Linseed, raw Calcutta seed	@62
Lard, Extra Prime, Winter	60 @..
Lard, Extra No. 1	47 @48
Lard, No. 1	37 @42
Cotton-seed, Crude, f.o.b. mills	21½@22½
Cotton-seed, Summer Yellow, Prime	27½@28
Cotton-seed, Summer Yellow, off grades	@..
Sperm, Crude	50 @52
Sperm, Natural Spring	@..
Sperm, Bleached Spring	@..
Sperm, Natural Winter	60 @62
Sperm, Bleached Winter	63 @65
Tallow, Prime	51 @53
Whale, Crude	@..
Whale, Natural Winter	42 @44
Whale, Bleached Winter	44 @46
Menhaden, Brown, Strained	27 @29
Menhaden, Light, Strained	28 @29
Menhaden, Bleached, Winter	30 @31
Menhaden, Ex.-Bld., Winter	31 @32
Menhaden, Southern	16 @16½
Cocoanut, Ceylon ℔	6⅛@ 6⅜
Cocoanut, Cochin ℔	8 @ 8½
Cod, Domestic, Prime	34 @35
Cod, Newfoundland	38½@40
Red, Elaine	28 @30
Red, Saponified ℔	4 @ 4⅜
Olive, Italian, bbls	60 @67
Neatsfoot, prime	49 @50
Palm, Logos ℔	6⅛@ 6⅜

Mineral Oils—

Black, 29 gravity, 25@30 cold test ℔ gal.	10½@11½
Black, 29 gravity, 15 cold test	11½@12½
Black, Summer	10½@11½
Cylinder, light filtered	18 @19
Cylinder, dark filtered	16 @17
Paraffine, 903-907 gravity	12½@13
Paraffine, 903 gravity	11½@12
Paraffine, 885 gravity	9½@ 10½
Paraffine, Red	11½@13

In small lots ¼¢ advance.

Miscellaneous—

Barytes, White, Foreign	℔ ton	$17.50@19.00
Barytes, Amer. floated	℔ ton	18.00@19.00
Barytes, off color, No. 2	℔ ton	13.50@15.00
Chalk, in bulk	℔ ton	3.00@ 3.25
Chalk, in bbls	℔ 100 lb	.... @ .35
China Clay, English	℔ ton	11.00@17.00
Cobalt, Oxide	℔ 100 lb	2.50@ 2.60
Whiting, Common	℔ 100 lb	.43@ .48
Whiting, Gilders	℔ 100 lb	.50@ .55
Whiting, Ex. Gilders	℔ 100 lb	.55@ .60

Putty, Commercial—℔ 100 lb

In bladders	$1.65 @1.85
In bbls. or tubs	1.15 @1.75
In 1 lb to 5 lb cans	2.60 @2.90
In 12½ to 50 lb cans	1.45 @1.85

Spirits Turpentine—℔ gal.

In Oil bbls	64½@65
In machine bbls	65 @65½

Glue—

	℔ lb
Cabinet	11 @15
Common Bone	7 @ 9
Extra White	18 @24
Foot Stock, White	11 @14
Foot Stock, Brown	8 @11
German Hide	12 @18
French	10 @40
Irish	13 @16
Low Grade	9 @12
Medium White	14 @17

Gum Shellac—

	℔ lb
Bleached Commercial	37 @39
Bone Dried	47 @49
Button	36 @45
Diamond I	@65
Fine Orange	45 @47
A. C. Garnet	@45
D. C.	60 @..
Octagon B	@52
T. N.	41 @43
V. S. O.	52 @..

Colors in Oil—

	℔ lb
Black, Lampblack	12 @14
Blue, Chinese	36 @46
Blue, Prussian	32 @36
Blue, Ultramarine	13 @16
Brown, Vandyke	11 @14
Green, Chrome	10 @15
Green, Paris	@24
Sienna, Raw	12 @15
Sienna, Burnt	12 @15
Umber, Raw	11 @14
Umber, Burnt	11 @14

White Lead, Zinc, &c.—

	℔ lb
Lead, English white, in Oil	8½@ 9⅛
Lead, American white, in Oil:	
Lots of 500 lb or over	@ 7
Lots less than 500 lb	@ 7⅛
In Barrels	@ 6½
Lead, White, in oil, 25 lb tin pails, add to keg price	@ ⅛
Lead, White, in oil, 12½ lb tin pails, add to keg price	@ 1
Lead, White, in oil, 1 to 5 lb ass'ted tins, add to keg price	@ 1½
Lead, American, Terms: For lots 12 tons and over ¼¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.	℔ lb
Lead, White, Dry, in bbls	@ 6½
Zinc, American, dry	4¾@ 5
Zinc, French:	
Paris, Red Seal, dry	9½
Paris, Green Seal, dry	10¾
Antwerp, Red Seal, dry	8¾
Antwerp, Green Seal, dry	10
Zinc, V. M. French, in Poppy Oil:	
Green Seal:	
Lots of 1 ton and over	12¾@13¾
Lots of less than 1 ton	13¾@13¾
Zinc, V. M. French, in Poppy Oil:	
Red Seal:	
Lots of 1 ton and over	11¾@12¾
Lots of less than 1 ton	11¾@12¾

Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors—

	℔ lb
Black, Carbon	5 @10
Black, Drop, American	4 @ 6
Black, Drop, English	5 @15
Black, Ivory	16 @20
Lamp, Com	4½@ 6
Blue, Celestial	4 @ 6
Blue, Chinese	29 @32
Blue, Prussian	27 @30
Blue, Ultramarine	14½@15
Brown, Spanish	½@ 1
Carmine, No. 40	$3.50@3.60
Green, Chrome, ordinary	3½@ 6
Green, Chrome, pure	17 @25
Lead, Red, bbls., ½ bbls. and kegs:	
Lots 500 lb or over	@ 7
Lots less than 500 lb	@ 7½
Litharge, American, bbls	@ 7
Ocher, American ℔ ton	$8.50@16.00
Ocher, American Golden	2½@ 3½
Ocher, French	1¾@ 2½
Ocher, Foreign Golden	3 @ 4
Orange Mineral, English	10 @12
Orange Mineral, French	10¾@12¼
Orange, Mineral, German	8½@10
Orange, Mineral, American	8¼@ 8½
Red, Indian, English	4½@ 8½
Red, Indian, American	3 @ 3¼
Red, Turkey, English	4 @10
Red, Tuscan, English	7 @10
Red, Venetian, Amer. ℔ 100 lb	$0.50@1.25
Red Venetian, English. 100 lb	$1.15@1.75
Sienna, Italian, Burnt and Powdered ℔ lb	3 @ 9½
Sienna, Ital. Raw, Powd. ℔ lb	3 @ 6½
Sienna, American, Raw ℔ lb	1½@ 2
Sienna, American, Burnt and Powdered ℔ lb	1¼@ 2
Talc, French ℔ ton	$15.00@30.00
Talc, American ℔ ton	15.00@25.00
Terra Alba, French ℔ 100 lb	90 @1.00
Terra Alba, English ℔ 100 lb	90 @1.00
Terra Alba, American, ℔ 100 lb., No. 1	60 @70
Terra Alba, American, ℔ 100 lb., No. 2	45 @50
Umber, Turkey, Bnt. & Pow. ℔ lb	2½@ 3¼
Umber, Turkey, Raw & Pow. ℔ lb	2½@ 3½
Umber, Burnt, Amer. ℔ lb	1¾@ 2
Umber, Raw, Amer. ℔ lb	1½@ 2
Yellow, Chrome ℔ lb	@14
Vermilion, American Lead	10 @25
Vermilion, Quicksilver, bulk ℔ lb	@65
Vermilion, Quicksilver, bags ℔ lb	@65
Vermilion, English, Import ℔ lb	75 @90
Vermilion, Chinese ℔ lb	$0.90@1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1905, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Domestic, ₱ doz. $3.00.....33⅓%
North's 10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—
Eagle Anvils.....₱ lb 6¾@7 ¢
Hay-Budden, Wrought.....9@9¼ ¢
Horseshoe brand, Wrought.....9@9¼ ¢
Trenton .....₱ lb 9@9¼ ¢

Imported—
Peter Wright & Sons.....₱ lb 10¼ ¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00.....15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co.....33⅓%

Augers and Bits—
Com. Double Spur.....75@75&5%
Jennings' Patn., reg. finish.... 50&10%@60%
Black Lip or Blucd.....60&10%
Boring Mach. Augers.....70&10%
Car Bits, 12-in. twist.....50&10%
Ford's Auger and Car Bits.....40&5%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip, R. Jennings' list..25%
No. 30, R. Jennings' list.....40&7½%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Millers Falls.....50&7½&7½%
Ohio Tool Co.'s Bailey Auger and Car Bits.....40&10%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist....60&10%
Wright's Jennings' Bits.....50%

Bit Stock Drills—See *Drills, Twist.*

Expansive Bits—
Clark's small, $18; large, $26....50&10%
Clark's Pattern, No. 1, ₱ doz. $26; No. 2, $18.....65%
Ford's, Clark's Pattern.....60&5%
C. E. Jennings & Co., Steer's Pat..25%
Swan's 60%

Gimlet Bits—
Per gro.
Common Dble. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.60; 11 to 13, $5.75

Hollow Augers—
Bonney Pat., per doz..$5.50@6.00
Ames .....25&10%
Universal 20%
Wood's Universal.....25%

Ship Augers and Bits—
Ship Augers.....45&5@60%
Ford's .....33⅓@5%
C. E. Jennings & Co.:
L'Hommedieu's 15%
Watrous' .....35&5%
Ohio Tool Co.'s.....40%
Snell's 40%

Awl Hafts—See *Handles, Mechanics' Tool.*

Awls—
Brad Awls:
Handled .....gro. $2.75@3.00
Unhdled, Shldered...gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 31@34¢
Unhdled, Shldered..gro. 65@70¢
Scratch Awls:
Hanaled, Com...gro. $3.50@4.00
Handled, Socket..gro.$11.50@12.00
Hurwood 40%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights:
First Quality.....$6.75
Second Quality.....$6.25
Double Bit, base weights:
First Quality.....$9.00
Second Quality.....$8.50

Axle Grease—See *Grease, Axle*

Axles—Iron or Steel
Concord, Loose Collar...4¼@4¾¢
Concord, Solid Collar...4¾@5¼¢
No. 1 Common, Loose...3¼@3¾¢
No. 1½ Com., New Style3¾@4¼¢
No. 2 Solid Collar.....4@4½¢
Half Patent:
Nos. 7, 8, 11 and 12....75@75&5%
Nos. 13 to 14.....70&10@75&5%
Nos. 15 to 18...75&10@75&10&5%
Nos. 19 to 23...75&10@75&10&5%

Boxes, Axle—
Common and Concord, not turned lb..4½@5¢
Common and Concord, turned. lb., 5½@6¢
Half Patent.....lb. 8½@9¢

Bait—Fishing—
Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20&5%

Balances—Sash—
Caldwell new list.....50%
Pullman .....50&10@60%

Spring—
Spring Balances.....50&10@60%
Chatillon's:
Light Spg. Balances.....40&10%
Straight Balances.....40%
Circular Balances.....50%
Large Dial.....30%

Barb Wire—See *Wire, Barb.*

Bars—Crow—
Steel Crowbars, 10 to 40 lb.... per lb., 2.50@2.75¢

Towel -
No. 10 Ideal, Nickel Plate..₱ gro. $8.50

Beams, Scale—
Scale Beams.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ₱ doz. $0.85; Tinned $1.00
No. 11 Wire Coppered ₱ doz. $1.10; Tinned $1.20
No. 10 Wire Galvanized..₱ doz. $1.75
Western W. G. Co.:
No. 1 Electric.....₱ gro. $7.80
No. 2 Buffalo.....₱ gro. $9.00
No. 3 Perfection Dust.....₱ gro. $8.00

Egg—
Holt-Lyon Co.:
Holt, No. A, Japanned....₱ doz. $1.20
Holt, No. 1, Tinned.....₱ doz. $1.50
Holt, No. B, Japanned....₱ doz. $2.00
Holt, No. 2, Tinned.....₱ doz. $2.25
Lyon, No. 2, Japanned....₱ doz. $1.25
Lyon, No. 3, Japanned....₱ doz. $1.50
Taplin Mfg. Co.: ₱ gro.
No. 60 Improved Dover.....$6.00
No. 75 Improved Dover.....$6.50
No. 100 Improved Dover.....$7.00
No. 102 Improved Dover, Tin'd..$8.50
No. 150 Improved Dover, Hotel..$15.00
No. 152 Imp'd Dover, Hotel, T'd.$17.00
No. 200 Imp'd Dover Tumbler....$8.50
No. 202 Imp'd Dover Tumbler, T'd.$9.50
No. 300 Imp'd Dover Mammoth, ₱ doz. $25.00
Western, W. G. Co., Buffalo.....$7.00
Wonder (S. S. & Co.).₱ gro. net, $6.00

Bellows—
Blacksmith, Standard List.. 60&10@70&10%

Hand—
Inch..	*6*	*7*	*8*	*9*	*10*
Doz...	*$4.75*	*5.70*	*6.65*	*7.60*	*8.85*

Molders—
Inch..	*9*	*10*	*11*	*12*	*14*
Doz...	*$8.00*	*9.00*	*10.50*	*12.50*	*14.50*

Net Prices.

Bells—Cow—
Ordinary goods...75&5@75&10&5%
High grade.....70&10@70&10&5%
Jersey .....75&10%
Texas Star.....50%

Door—
Abbe's Gong.....45%
Burton Gong.....50%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's....60&10&10%
Trip Gong.....50&10@60&10&5%
Yankee Gong.....55%

Hand—
Hand Bells, Polished, Brass.. 60&5@60&10%
White Metal.....60%
Nickel Plated....50&10@50&10&5%
Swiss .....60@60&67½%
Cone's Globe Hand Bells.....33⅓@35%
Silver Chime.....33⅓@35%

Miscellaneous—
Farm Bells.....lb. 2¼ ¢
Steel Alloy Church and School 50&10&5@60&5%
American Tube & Stamping Co. Gongs 75%
Table Call Bells.....50@50&10%

Belting—Leather—
Extra Heavy, Short Lap..60&5%
Regular Short Lap....60&10&5%
Standard 70%
Light Standard.....70&5%
Cut Leather Lacing.....60%
Leather Lacing Sides, per sq. ft. 22¢

Rubber—
Agricultural (Low Grade).... 75@75&5%
Common Standard....70@70&10%
Standard .....60&5@60&10%
Extra .....60@60&5%
High Grade.....50&5@50&10%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—
Detroit Perfected Tire Bender.....40%
Green River Tire Benders and Upsetters 20%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.

Bicycle Goods—
John S. Leng's Son's 1902 list:
Chain 50%
Parts 50%
Spokes 50%
Tubes 60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks—Tackle—
Common Wooden....70&10@75%
Hartz St. Tackle Blocks.....50@50&5%
Hollow Steel Blocks, with Ford's Patent Sheaves.....50&10%
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron....50&10%
Stowell's Self Loading.....60%
See also Machines, Hoisting.

Boards, Stove—
Zinc, Crystal, &c...30&10@40&10%

Boards, Wash—See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co.....33⅓%

Bolts—
Carriage, Machine, &c.—
Common Carriage (cut thread): ⅝ x 6 and smaller.....75@—%
Larger and Longer..65&5@—%
Phila. Eagle,$3.00 list May 24,'99 80%
Bolt Ends, list Feb. 14, '95.... 65&10@—%
Machine, ⅜ x 4 and smaller 75@—%
Machine, larger and longer.. 65&10@—%

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knob:
Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz.	*$0.30*	*.35*	*.45*	*.60*	*.80*

Cast Iron Spring Foot, Jap'd:
Inch.....	*6*	*8*	*10*
Per doz.....	*$1.20*	*1.50*	*2.25*

Cast Iron Chain, Flat, Japanned:
Inch.....	*6*	*8*	*10*
Per doz.....	*$1.00*	*1.40*	*1.65*

Cast Iron Flat Shutter, Jap'd., Brass Knobs:
Inch.....	*6*	*8*	*10*
Per doz.....	*$0.75*	*.95*	*1.25*

Wrt Barrel Japd.....80@80&10%
Wrt " Bronzed....50@50&10%
Wrt. Spring...70&10@70&10&10%
Wrt. Shutter.....50&5@50&10&5%
Wrt. Square Neck.....75@75&10%
Wrt Square,66⅔&10@66⅔&10&10%
Ives' Patent Door.....60%

Plow and Stove—
Plow .....65&10&10@70%
Stove .....87½&10@—

Tire—
Common .....80&10&5%
Norway Iron.....80%
American Screw Company:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Bay State, list Dec. 28, '99.....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Eclipse, list Dec. 28, '99.....80%
Mount Carmel Bolt Co.:
Norway Phila., list Oct. 16, '84....80%
Eagle Phila., list Oct. 16, '84....82½%
Mount Carmel, list Dec. 28, '99...80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99.....80%
Norway Phila., list Oct., '84.....80%
Upson Nut Co.:
Tire Bolts.....72½%

Borers, Tap—
Borers Tap, Ring, with Handle:
Inch.....	*1¼*	*1½*	*1¾*	*2*
Per doz...	*$4.80*	*5.60*	*6.40*	*8.00*
Inch	*2¼*	*2½*		
Per doz.....	*$6.65*	*11.50*		

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.....25%

Boxes, Mitre—
C. E. Jennings & Co.....30%
Langdon .....15&10%
Perfection 40%
Seavey 33⅓%
Stanley R. & L. Co.:
Nos. 240 to 460.....30%
Nos. 50 and 60.....35%

Braces—
Common Ball,American..$1.25@1.30
Barber's .....50&10&10@60&10%
Fray's Genuine Spofford's.....60%
Fray's No. 70 to 120, 81 to 123, 207 to 414 .....60%
C. E. Jennings & Co.....50&5%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Pat...50%
Millers Falls Drill Braces.....25&10%
P., S. & W. Co., Peck's Pat.60@60&5%
Stanley R. & L. Co.:
Stanley 35%
Victor 40%

Brackets—
Wrought Steel...80&10@80&10&5%
Griffin's Pressed Steel.....80@80&10%
Griffin's Folding Brackets.....70&10%
Stowell's Cast Shelf.....75%
Stowell's Sink.....50%
Western, W. G. Co., Wire.....60&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co.....75&20%
Western, W. G. Co.....80%
Wire Goods Co.....75@75&10%

Buckets, Galvanized—
Price per dozen.
Quart.....	*10*	*12*	*14*
Water, Regular...	*1.40*	*1.70*	*1.90*
Water, Heavy....	*3.40*	*3.70*	*3.80*
Fire, Rd. Bottom..	*2.30*	*2.55*	*2.95*
Well	*2.55*	*2.87*	*3.15*

Bucks, Saw—
Hoosier.....₱ gro. $36.00

Bull Rings—See *Rings, Bull*

Butts—Brass—
Wrought, list Sept., '96....20&5%
Cast Brass, Tiebout's.....50%

Cast Iron—
Fast Joint, Broad....40&10@50%
Fast Joint, Narrow....40&10@50%
Loose Joint.....70&10@75%
Loose Pin.....70&10@75%
Mayer's Hinges.....70@70&5%
Parliament Butts.....70@70&5%

Wrought Steel—
Table and Back Flaps...75%
Narrow and Broad.....75%
Inside Blind.....75%
Loose Pin.....75%
Loose Pin, Jap'd.....70&10%
Loose Pin, Ball and Steeple Tip 85%
Japanned Ball Tip Butts... 70&10%
Bronzed, Wrt., Nar. and Inside Blind Butts....55&10%

Cages, Bird—
Hendryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33⅓%
200, 300, 600 and 900 series.....60&10%

Hendryx Bronze:
700, 800 series....40&10%
Hendryx Enameled....40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong....per lb.4¢4¼¢
Sharp, 1 prong...per lb., 4½@4¾¢
Burke's Blunt....4@4¼¢
Burke's Sharp....4½@4¾¢
Gautier, Blunt....4@4¼¢
Gautier, Sharp....4½@4¾¢
Perkins', Blunt Toe....₩ lb 3.65¢
Perkins', Sharp Toe....₩ lb 4.15¢

Can Openers—

See *Openers, Can.*

Cans, Milk—

	5	8	10 gal.
Illinois Pattern	$1.35	1.85	2.05 each.
New York Pattern	1.50	2.20	2.45 each.
Baltimore Pattern	1.50	2.20	2.45 each.
Dubuque	1.35	1.60	1.75 each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$8.00	60.00	129.60 gro., net.

Caps, Percussion—

Eley's E. B....52@55¢
G. D....per M 34@35¢
F. L....per M 40@42¢
G. E....per M 48@50¢
Musket....per M 62@63¢

Primers—

Berdan Primers, $2 per M...20%
B. L. Caps (Sturtevant Shells) $2 per M....20%
All other primers per M.$1.52@1.60

Cartridges—

Blank Cartridges;
32 C. F., $5.50....10&5%
38 C. F., $7.00....10&5%
22 cal. Rim, $1.50....10&5%
32 cal. Rim, $2.75....10&5%
B. B. Caps, Con. Ball, Swgd..$1.90
B. B. Caps, Round Ball....$1.49
Central Fire....25%
Target and Sporting Rifle..15&5%
Primed Shells and Bullets.15&10%
Rim Fire, Sporting....50%
Rim Fire, Military....15&5%

Casters—

Bed....70@70&10%
Plate....60&10@60&10&5%
Philadelphia....75@75&10%
Acme, Ball Bearing....33⅓%
Boss....70&10%
Boss Anti-Friction....70&10%
Gem (Roller Bearing)....80%
Martin's Patent (Phoenix)....45%
Standard Ball Bearing....45%
Tucker's Patent low list....30%
Yale (Double Wheel) low list....50%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Coil—

American Coil, Straight Link:
5-16 ¼ 5-16 ⅜ 7-16 ½ 9-16
⅝ ¾ ⅞ to 1 1⅛ to 1¼ inch.
See Trade Report.
German Coil....60&10&10@70%

Halter—

Halter Chains....60&5@60&10%
German Pattern Halter Chains, list July 24, '97....60&10&10%
Covert Mfg. Co,
Halter....35&5%
Covert's Saddlery Works
Halter....70%

Cow Ties—

See *Halters and Ties.*

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6½—6-3, Str'ght, with ring..$24.50
6½—6-2, Str'ght, with ring..$25.50
6½—8-2, Str'ght, with ring..$29.50
6½—10-2, Str'ght, with ring..$34.00
NOTE.—Add 2c per pair for Hooks. Twist Traces 2c per pair higher than Straight Link.
Eastern Standard Traces, Wagon Chain, &c....60&10&5@70%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron....60&10&5@70%
Brass....60&10@60&10&10%
Safety Chain....75@75&10%
Gal. Pump Chain....lb. 5@5¼%
Covert Mfg. Co.:
Breast....35&5%
Heel....35&5%
Rein....35&5%
Stallion....35&5%
Covert Sad. Works:
Breast....70%
Hold Back....70%
Rein....70%
Oneida Community:
Am. Dog Leads and Kennel Chains, 40@40&5%
Niagara Dog Leads and Kennel Chains....45@60&5%
Wire Goods Co.:
Dog Chain....70&10%
Universal Dbl.-Jointed Chain....50%

Chain and Ribbon, Sash—

Oneida Community:
Copper Chain....60&5%
Steel Chain....60%
Pullman:
Bronze Chain....60%
Steel Chain....60&10%
Sash Chain Attachments, per set..8¢
Aluminoy Sash Ribbon, per 100 ft....$1.25@$3.00
Sash Ribbon Attachments, per set.8¢

Chalk—(From Jobbers.)

Carpenters' Blue....gro. 38@40¢
Carpenters' Red....gro. 33@35¢
Carpenters' White....gro. 28@30¢
See also Crayons.

Checks, Door—

Bardsley's....45%
Eclipse....60&10%
Pullman, per gro....$54.00
Russwin....40%

Chests, Tool—

American Tool Chest Co.:
Boy's Chests, with Tools....55%
Youths' Chests, with Tools....40%
Gentlemen's Chests, with Tools..30%
Farmers', Carpenters', etc., Chests, with Tools....20%
Machinists' and Pipe Fitters' Chests, Empty....50%
Tool Cabinets....50%
C. E. Jennings & Co.'s Machinists' Tool Chests....33⅓&10%

Chisels—

Socket Framing and Firmer

Standard List....75@75&10%
Buck Bros....30%
Charles Buck....30%
C. E. Jennings & Co. Socket Firmer No. 10....60%
C. E. Jennings & Co. Socket Framing No. 15....60%
Ohio Tool Co.'s....70%
Swan's....75%
L. & I. J. White....30@30&5%

Tanged—

Tanged Firmers....33 1-3@40%
Buck Bros....30%
Charles Buck....30%
C. E. Jennings & Co. Nos. 191, 181..25%
L. & I. J. White, Tanged....25&5%

Cold— lb.

Cold Chisels, good quality..13@15¢
Cold Chisels, fair quality..11@12¢
Cold Chisels, ordinary... 9@10¢

Chucks—

Beach Pat., each $8.00....35&5%
Empire....25%
Blacksmiths'....25%
Jacobs' Drill Chucks....35%
Pratt's Positive Drive....25%
Skinner Patent Chucks:
Independent Lathe Chucks....50%
Universal....50%
Combination....50%
Drill Chucks, New Model....30%
Drill Chucks, Standard....45%
Drill Chuck, Skinner Pat. all sizes..35%
Drill Chucks, Positive Drive....30%
Planer Chucks....25%
Face Plate Jaws....40%
Standard Tool Co.:
Improved Drill Chuck....45%
Union Mfg. Co.:
Combination....50%
Czar Drill....35%
Combination Geared Scroll....40%
Geared Scroll....40%
Independent....50%
Independent Steel....40%
Union Drill....45%
Universal....50%
Independent Iron F. Plate Jaws.40%
Independent Steel F. Plate Jaws.40%
Westcott Patent Chucks:
Lathe Chucks....50%
Little Giant Auxiliary Drill....50%
Little Giant Double Grip Drill..50%
Little Giant Drill, Improved....50%
Oneida Drill....50%
Scroll Combination Lathe....50%

Clamps—

Adjustable, Hammers'....20@20&5%
Cabinet, Sargent's....50&10%
Carriage Makers', P., S. & W. Co....40&10@50%
Carriage Makers', Sargent's....60%
Besly, Parallel....33⅓&10%
Lineman's, Utica Drop Forge & Tool Co....40%
Saw Clamps, see Vises, Saw Filers'.
Wood Workers, Hammers'....40&10%

Cleaners, Drain—

Iwan's Champion, Adjustable....55%
Iwan's Champion, Stationary....45%

Sidewalk—

Star Socket, All Steel..₩ doz. $4.05 net
Star Shank, All Steel..₩ doz. $3.24 net
W. & C. Shank, All Steel, ₩ dos., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—

Foster Bros....30%
New Haven Edge Tool Co.'s....45%
Fayette R. Plumb....33⅓@33⅓&10%
L. & I. J. White....30%

Clippers—

Chicago Flexible Shaft Company:
'98 Chicago Horse....$8.75 } 15%
1902 Chicago Horse....10.75 }
20th Century Horse, each, $5.00...20%
Lightning Belt....$15.00
Chicago Belt....$20.00 } 15%
Stewart's Patent Sheep, $12.75....20%

Clips, Axle—

Regular Styles, list July 1, 1905 80%

Cloth and Netting, Wire

—See *Wire, &c.*

Cocks, Brass—

Hardware list:
Compression, Plain Bibbs, Globe, Kerosene, Racking, &c., Cocks....75@75&5%

Coffee Mills—

See *Mills, Coffee.*

Collars, Dog—

Nickel Chain, Walter B. Stevens & Son's list....40%
Leather, Walter B. Stevens & Son's list....40%

Combs, Curry—

Metal Stamping Co....40%

Mane and Tail—

Covert's Saddlery Works....60&10%

Compasses, Dividers, &c.

Ordinary Goods....75&5@75&10%
Bemis & Call Hdw. & Tool Co.:
Dividers....65%
Calipers, Double....65%
Calipers, Inside or Outside....65%
Calipers, Wing....60%
Compasses....50%

Conductor Pipe,—

L. C. L. to Dealers:
Galvanized.

Territory.	*Nested.*	*Not nested.*
Eastern	70&15%	70&10%
Central	70&7½%	70&2½%
Southern	70&2½%	60&20%
So. Western	60&20%	60&10%

Copper. *1½&16 oz.*

Eastern	50&10%
Central	50&7½%
Southern	50&5%
So. Western	50&2½%

Terms, 60 days; 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

Gal, each..	2	3	4	6	8
Labrador	$1.20	$1.50	$1.80	$2.10	$2.70
Gal.	3	4	5	6	8
Iceland, ea.	$1.80	$2.10	$2.40	$3.00	
Gal.	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15
White Enameled					25%
Agate Lined					25%

Coopers' Tools—

See *Tools, Coopers'.*

Coppers' Soldering—

Soldering Coppers, 3 lbs. to pair and heavier, 20½@21½¢; lighter than 3 lbs. to pair.22½@23½¢

Cord— Sash—

Braided, Drab....lb. 35¢
Braided, White, Com., Nos. 8 to 12, 24¢; No. 7, 24½¢; No. 6, 25½¢.
Cable Laid Italian....lb., A, 18¢; B, 16¢
Common India....lb. 10@10½¢
Cotton Sash Cord, Tw'ted..17@19¢
Patent Russia....lb...@14¢
Cable Laid Russia....lb...@15¢
India Hemp, Braided..lb...@18¢
India Hemp, Twisted..lb. 12@13¢
Patent India, Twisted..lb. 12@13¢
Anniston Cordage Co.: Braided Cotton, Old Glory, Nos. 7 to 12...₩ lb 29¢
Anniston, Nos. 8 to 12, 23¢; No. 7, 23½¢; No. 6, 24½¢; Anniston Drab, Nos. 7 to 12, ₩ lb, 26¢; Anniston Mahogany, 27¢.
Pearl Braided, cotton, No. 6, ₩ lb, 24½¢; No. 7, 23½¢; Nos. 8 to 12, 23¢
Eddystone Braided, Nos. 8, 9 and 10, 25¢; 7, 25½¢; 6, 26½¢.
Harmony Cable Laid Italian, Nos. 7 to 10....₩ lb 23 ¢
Peerless:
Cable Laid Italian....16 ¢
Cable Laid Russian....14 ¢
Cable Laid India....12 ¢
Braided India....18 ¢
Pullman:
Wire Sash Cord....10%
Sash Cord Attachments, per doz.10¢
Samson, Nos. 8 to 12:
Braided, Drab Cotton....₩ lb 40 ¢
Braided, Italian Hamp....₩ lb 40 ¢
Braided, Linen....₩ lb 55 ¢
Braided, White Cotton or Spot....₩ lb 35 ¢
Massachusetts, White....₩ lb 28 ¢
Massachusetts, Drab....₩ lb 32 ¢
Phoenix, White, Nos. 8 to 12, 24¢; No. 7, 24½¢; No. 6, 25½¢.
Silver Lake:
A quality, Drab....40 ¢
A quality, White....35 ¢
B quality, Drab....35 ¢
B quality, White....30 ¢
Italian Hemp....40 ¢
Linen....57½ ¢
See also Chain and Ribbon.

Wire, Picture—

List Oct., '00....85&10&10@85&10&10&5%
Hendryx Standard Wire Picture Cord, 85&10&5%

Cradles—

Grain....40&12½%

Crayons—

White Round Crayons, gr..6@6½¢
Cases, 100 gro., $5.00 at factory.
D. M. Steward Mfg. Co.: (Case lots, 20%)
Jumbo Crayons....gr. $3.50
Metal Workers' Crayons, gr. $2.50
Soapstone Pencils, round, flat or square....gr. $1.50
Rolling Mill Crayons....gr. $2.50
Railroad Crayons (composition) gr. $2.00
Zelnicker's Lumber:
Red, Blue, Green....₩ gro. $6.50
Black....₩ gro. $4.00
See also Chalk.

Crooks, Shepherds'—

Fort Madison, Heavy....₩ doz. $7.00
Fort Madison, Light....₩ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden....50%

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1847..₩ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor....₩ doz. $3.00
Wm. Rogers & Son....₩ doz. $2.50

Cutters— Glass—

H. H. Mayhew Co....40%
Red Devil....50%
Smith & Hemenway Co....50%
Woodward....40%

Meat and Food—

American....30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Enterprise....25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.75	$4.50	$6

Dixon's....₩ doz. 40@50%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal....40&10@50%
Little Giant....₩ doz. 40@50%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

N. E. Food Choppers....25%
New Triumph No. 605, ₩ doz. $24.00....40@50%
Russwin Food, No. 1, $24.00; No. 2, $27.00....45&10&10%
Woodruff's....₩ doz. 40@50%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers....25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c....40%
Kraut Cutters, 24 x 7, 26 x 8, 30 x 9....55%
Kraut Cutters, 36 x 12, 40 x 12....40%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....₩ doz. $3.00
Combined Slaw Cutter and Corn Grater....₩ doz. $4.00
Tucker & Dorsey Mfg. Co.:
Kraut Cutters....40%
Slaw Cutters, 1 Knife..₩ gr. $18@$20
Slaw Cutters, 2 Knife..₩ gr. $22@$30

Tobacco—

All Iron, Cheap..doz. $4.25@$4.50
Enterprise....25a@30%
National, ₩ doz., No. 1, $21; No. 2, $18....40%
Sargent's, ₩ doz., No. 2....60%
Sargent's, Nos. 12 and 21....60&10%

Washer—

Appleton's, ₩ doz., $16.00....50&10&10%

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger..per doz., $9.00
Iwan's Imp'ved Post Hole Auger.40&5%
Iwan's Vaughan Pattern Post Hole Augers....₩ doz. $6.25
Iwan's Perfection Post Hole Digger..₩ doz. $8.25
Iwan's Split Handle Post Hole Diggers....₩ doz. $7.25
Kohler's Universal....₩ doz. $14.00
Kohler's Little Giant....₩ doz. $12.00
Kohler's Hercules....₩ doz. $10.00
Kohler's Invincible....₩ doz. $9.00
Kohler's Rival....₩ doz. $8.00
Kohler's Pioneer....₩ doz. $7.00
Never-Break Post Hole Diggers, ₩ doz., $24.00....60%
Samson, ₩ doz. $34.00....25%

Dividers—See *Compasses.*

Doors, Screen—

Phillips', style E, ⅞ in....₩ doz. $10.00
Phillips', style 077, ⅞ in....₩ doz. $7.50
Phillips', style x-y, ⅞ in....₩ doz. $10.50

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, ₩ doz., $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—

See *Knives, Drawing.*

Dressers, Emery Wheel—

Diamond Emery Wheel Dressers....35%
Diamond Wheel Dresser Cutters....35%

Drills and Drill Stocks—

Common Blacksmiths' Drill, each....$1.50@$1.75
Breast, Millers Falls....15&10%
Breast, P., S. & W....40%
Goodell Automatic Drills..40&5@10&10%
Johnson's Automatic Drills, Nos. 2 and 3....16⅔%
Johnson's Drill Points....16⅔%
Millers Falls Automatic Drills.33⅓&10%
Ratchet, Curtis & Curtis....25%
Ratchet, Parker's....40%
Ratchet, Weston's....40%
Ratchet, Weston's, Style H Improved....40%
Ratchet, No. 012....40%
Ratchet, Whitney's, P., S. & W..50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00....33⅓%

Twist Drills—

Bit Stock....60&10&10@70%
Taper and Straight Shank....60&10@60&10&5%

Drivers, Screw—

Screw D'ver Bits, per doz..45@50¢
Balsey's Screw Holder and Driver, ₩ doz., 2½-in., $6; 4-in., $7.50; 6-in., $9....50%
Buck Bros.' Screw Driver Bits....30%
Champion....50%
Edson....60%
Fray's Hol. H'dle Sets, No. 3, $12...50%
Gay's Double Action Ratchet....35%
Goodell's Auto..50&10&10@50&10&10&5%
Hurwood....40%
Mayhew's Black Handle....40%
Mayhew's Monarch....40&10%
Millers Falls, Nos. 20 and 21....25&10%
Millers Falls, Nos. 11, 12, 41, 42..15&10%
New England Specialty Co....50&10%
Sargent & Co.'s:
Nos. 1 and 60....50&10&10%
Nos. 50, 53 and 55....60&10%
Nos. 20 and 40....70&10%
Smith & Hemenway Co....40&5%
H. D. Smith & Co.'s Perfect H'dle.40%
Stanley R. & L. Co.'s:
No. 64, Varn. Handles....65%
No. 86....75%
Victor....55%
Defiance....70%
Swan's:
Nos. 7565 to 7568....50%
No. 7540....40&10%

Eave Trough, Galvanized—

Territory.	*L. C. L.*
Eastern	80&5%
Central	75&10&10%
Southern	75&12½%
So. Western	75&5%

Terms,—2% for cash. Factory shipments generally delivered.
See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments, all territories:

	Galv. Steel and Galv. C. C. Iron and Steel, Standard Gauge	*Galv. Steel and Galv. C. C. Iron and Steel, Standard Gauge*
	lb. 5 ¢	*5½ ¢*
½ Kegs	*lb. 5½ ¢*	*5¾ ¢*
¼ Kegs	*lb. 5½ ¢*	*6 ¢*
10-lb. cans, 10 in case	*6½ ¢*	*7 ¢*
10-lb. cans, less than 10	*10 ¢*	*10 ¢*
Less quantity	*10 ¢*	*10 ¢*

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice

—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's .....50&10%
Walling's .....40&10%

Cord and Weight—
Ives 40%

Faucets—
Cork Lined.....50@50&10%
Metallic Key, Leather Lined..60&10@70%
Red Cedar.....40&10@50%
Petroleum.....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined...50%
John Sommer's Reliable Cork Lined..50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
McKenna, Brass:
Burglar Proof, N. P.....25%
Improved, ¾ and ⅞ inch.....25%
Self Measuring:
Enterprise, ℔ doz. $36.00.....40&10%
Lane's, ℔ doz. $36.00.....40&10%
National Measuring, ℔ doz. $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List revised Nov. 1, 1899.
Best Brands.....70&10@75&5%
Standard Brands.75&10@75&10&10%
Lower Grade....75&10&10@80&10%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....33 1-3@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103.....$3.75
Special, No. 104.....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	$3.25	3.75	4.25	4.75

P., S. & W. Co.....30&10@40%
Reading Hardware Co.....60%
Sargent's 70%
Stowell's Giant Grindstone Hanger..℔ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy .....50&10&10%
Stowell's Grindstone Fixtures, Light.60&10%

Fodder Squeezers—
See *Compressors.*

Forks—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Iowa Dig-Ezy Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....66%
Victor, Header.....65%
Champion, Hay.....66%
Champion, Header.....65%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....65%
W. & C. Favorite Wood Barley.....40%
Plated.—See Spoons.

Frames— Saw—
White, S'g't Bar, per doz..75@80¢
Red, S'g't Bar, per doz...$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.	*1*	*2*	*3*	*4*	*6*
Each	$1.30	$1.60	$1.90	$2.20	$2.80

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped.. 3.65
Waterproof Dbl. Taped.. 4.40
Waterproof Tpl. Taped.. 5.15
} 45&10%

Gates, Molasses and Oil—
Stebbins' Pattern.60&10@60&10&5%

Gauges—
Marking, Mortise, &c..50&10@60%
Chapin-Stephens Co.:
Marking, Mortise, &c.50&10@50&10&10%
Scholl's Patent.....50&10@50&10&10%
Door Hangers.....50@50&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....35%
Marking and Mortise.....60%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....60@60&10&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush..25&10@50%
International Glue Co. (Martin's)..40%

Grease, Axle—
Common Grade....*gro.* $4.50@6.00
Dixon's Everlasting..10-lb pails, ea. 85¢
Dixon's Everlasting, in boxes, ℔ doz. 1 lb, $1.20; 2 lb, $2.00
Helmet Hard Oil.....25%

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grindstones—
Bicycle Emery Grinder.....$6.50
Bicycle Grindstones, each.....$2.50@3.00
Pike Mfg. Co.:
Improved Family Grindstones, per inch, ℔ doz.....$2.00
Pike Mower and Tool Grinder, each $6.00
} 33⅓%
Velox Ball Bearing, Mounted, Angle Iron Frames, each.....$5.00

Hatters and Ties—
Cow Ties.....60&5@60&10%
Covert Mfg. Co.:
Web .....35&5%
Jute Rope.....50%
Sisal Rope.....30&10%
Cotton Rope.....45%
Hemp Rope.....45%
Covert's Saddlery Works:
Web and Leather Halters.....70%
Jute and Manila Rope Halters.....70%
Sisal Rope Halters.....60&20%
Jute, Manila and Cotton Rope Ties 70%
Sisal Rope Ties.....60&10%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters..45@50&5%
Niagara Cow Ties....45&5@50&10&5%
E. T. Rugg & Co.:
Leather Halters.....50%
Web Halters and Webbing.....60%
Jute and Sisal Rope Halters.....60%
Jute and Sisal Horse and Cattle Ties 60%
Cotton Horse Ties.....60%
Livery Ties, Braided.....60%

Hammers—
Handled Hammers—
Heller's Machinists'....40&10@40&10&10%
Heller's Farriers.....40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75.....50%
Peck, Stow & Wilcox, Steel.....50%
Fayette R. Plumb:
Plumb, A. E. Nail.....33⅓&7½@33⅓&10&7½%
Engineers' and B. S. Hand.....50&7½&5@50&10&7½&5%
Machinists' Hammers.50&5@50&10&5%
Riveting and Tinners'.....40&2½@40&10&2½%
Sargent's C. S. New List.....40%

Heavy Hammers and Sledges—
Under 3 lb., per lb..50¢..80¢5@—%
3 to 5 lb., per lb., 40¢..80¢5@—%
Over 5 lb., per lb., 30¢, 80¢10¢5@—%
Wilkinson's Smiths'...lb. 9½@10¢

Handles—
Agricultural Tool Handles
Axe, Pick, &c....60&10@60&10&5%
Hoe, Rake, &c.....45@50%
Fork, Shovel, Spade, &c.:
Long Handles.....45@50%
D Handles.....50@50&5%

Cross-Cut Saw Handles—
Atkins' 40%
Champion .....45@45&10%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...*gro.* $2.50@3.00
Brad Awl.....*gro.* $1.65@1.75
Chisel Handles:
Apple Tanged Firmer, gro. assorted .....$2.40@2.65
Hickory Tanged Firmer, gro. assorted .....$2.15@2.40
Apple Socket Firmer, gro. assorted .....$1.75@1.95
Hickory Socket Firmer, gro. assorted .....$1.45@1.60
Hickory Socket Framing, gro. assorted .....$1.60@1.75
File, assorted.....*gro.* $1.30@1.40
Hammer, Hatchet, &c. 60&10@60&10&5%
Hand Saw, Varnished, doz. 80¢85¢; *Not Varnished*...65@75¢
Plane Handles:
Jack, doz. 30¢; *Jack, Bolted.*75¢
Fore, doz. 45¢; *Fore, Bolted.*90¢
Chapin-Stephens Co.:
Carving Tool.....40@40&10%
Chisel .....65@65&10%
File and Awl.....65@65&10%
Saw and Plane.....40@40&10%
Screw Driver.....40@40&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle..℔ gro. $0.85@$1.50

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.
Allith Mfg. Co.:
Reliable, No. 1.....per doz. $3.00
Reliable, No. 2.....per doz. $2.00
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 19, $12.00.....70%
Roller Bearing, No. 11, $15.00.70%
Roller Bearing, Ex. Hy., No. 22, $18.00.....70%
Hinged Hangers, $16.00....60&10%
Lane Bros. Co.:
Parlor, Ball Bearing.....$4.00
Parlor, Standard.....$3.15
Parlor, No. 105.....$2.85
Parlor, New Model.....$2.80
Parlor, New Champion.....$2.25
Barn Door, Standard.....60&5%
Hinged.....net $6.40
Covered .....60&2%
Special .....70&5%
Lawrence Bros.:
Advance .....60&10%
Cleveland 75%
Clipper, No. 75.....60%
Crown .....60&10%
Easy Parlor Door, Dbl. Sets, $2.50; Single Sets, $1.25.
Giant .....60&5%
Hummer .....70&5%
New York.....60&10%
Peerless 75%
Sterling .....60&10%
McKinney Mfg. Co.:
No. 1, Special, $15.....60&10%
No. 2, Standard, $18.....60&10%
Hinged Hangers, $16.....50%
Meyers' Stayon Hangers.....60&5%
Richards Mfg. Co.:
Pioneer Wood Track No. 3..$2.00
Ball B'r'g St'l Track No. 10,50&10%
Roller B'r'g St'l Track No. 12,$2.15
Roller B'r'g St'l Track No. 13,$2.30
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&10%
Trolley F. D. No. 17.....$1.25
Trolley F. D. No. 120.....$2.10
Trolley F. D. No. 121.....$2.25
Trolley F. D. No. 150.....$2.35
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 44, 2¼ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&10%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.00
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24.....$1.30
Trolley B. D. No. 27.....$1.40
Trolley B. D. No. 28.....$1.60
Roller Bearings Nos. 39, 41, 43 .....75%
Anti-friction No. 42.....60&20%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Safety Door Hanger Co.:
Storm King Safety.....60%
U. S. Standard Hinge.....60%
Stowell Mfg. & Foundry Co.:
Acme Parlor Ball Bearing....40%
Ajax Hinge Door.....60
Apex Parlor Door.....50&10&5
Atlas 60
Baggage Car Door.....50
Climax Anti-Friction.....50&10
Elevator 40
Express 50
Freight Car Door.....60
Interstate .....60&10
Lundy Parlor Door.....50&10
Magic 60
Matchless .....60&10
Nansen .....70&5
Parlor Door.....50&10
Railroad .....50&10
Rex Hinge Door.....80
Street Car Door.....50
Steel, Nos. 300, 404, 500....50&10
Underwriters' Fire Door.....40
Wild West Warehouse Door..50
Zenith for Wood Track....50&10%
A. L. Sweet Iron Works:
Check Back.....70%
Climax Anti-Friction.....50&10
Eagle 70
Hylo Hinge.....60
New Perfection.....60
Pilot 60
Pilot Hinge.....60
Rider Wooster.....65
Western Pattern.....70
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing.50&15&10&5%
Wilcox Mfg. Co.:
Bike Roller Bearing..℔ doz. $3.00
C. J. Roller Bearing.....60&10%
Cycle Ball Bearing.....50
Dwarf Ball Bearing.....40
Ives, Wood Track.....60&10%
L. T. Roller Bearing...60&10&5%
New Era Roller Bearing..50&10%
O. K. Roller Bearing..40&10&5%
Prindle, Wood Track.....60
Richards' Wood Track.....60
Richards' Steel Track.....50&10%
Spencer Roller Bearing.....60&10%
Tandem, Nos. 1 and 2.....60%
Underwriters' Roller Bearing..40
Velvet 50
Wilcox Auditorium Ball B'r'g.20%
Wilcox Barn Trolley No. 123..40%
Wilcox Elv. Door, Nos. 112 and 122½.....50%
Wilcox Elv. Door, No. 132....40%
Wilcox Fire Trolley, Roller Bearing.....30%
Wilcox Le Roy Noiseless Ball Bearing 40%
Wilcox New Century..50&10&10%
Wilcox O. K. Steel Track....50%
Wilcox O. K. Trolley.....50%
Wilcox Trolley Ball Bearing..40%
Wilcox Wideman Narrow Gauge Ball Bearing.....40%
} Extra 5@10% often given.
For Track, see Rail.

Hangers— Garment—
Pullman Trouser, ℔ gro., 1 pair Flat Aluminoy, $9.00; 1 pair Round Nickeled, $9.00; 4 pair Round Nickeled..$27.00
Victor Folding.....℔ gro. $9.00
Western, W. G. Co.....70&10%

Gate—
Myers' Patent Gate Hangers, ℔ doz. net $4.50

Joist and Timber—
Lane Bros. Co.....30%

Hasps—
Griffin's Security Hasp.....50%
McKinney's Perfect Hasp, ℔ doz..50%

Hatchets—
Regular list, first quality....50%
Second quality $1.00 per doz. less than first quality.

Heaters, Carriage—
Clark, No. 5, $1.75; No. 5B, $2.00; No. 3, $2.25; No. 3D, $2.75; No. 7D, $3.00; No. 3E, $3.25; No. 1, $3.50.....15%
Clark Coal, ℔ doz. $0.75.....10%

Hinges—
Blind and Shutter Hinges—
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	*1*	*3*	*5*
Doz. pair	$0.75	1.35	2.70

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	*1*	*1½*	*2*	*2½*
Doz. pair	$0.70	.65	.60	.55

Mortise Reversible Shutter (Buffalo, &c.):

No.	*1*	*1½*	*2*
Doz. pair	$0.70	.65	.60

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.:
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Sargent's, Nos. 1, 3, 11 and 13..75&10%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets, without screws, $0.90; with screws, $1.20.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&10&5%
Acme, Lull & Porter.....75&10%
Queen City Reversible.....75&10%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
1868, Old Pat'n, Nos. 1, 3 & 5..75&10&5%
Tip Pat'n, Nos. 1, 3 & 5.....75&10&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
Shepard's Double Locking, Nos. 20 & 25.....70%
Champion Gravity Locking, No. 75.75%
Steamboat Gravity Locking, No. 10.75%
Pioneer, Nos. 060, 45 & 5½.....75%
Empire, Nos. 101 & 103.....70%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L'tches.	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.80
Latches only	.70	.70	.35

New England:
With Latch.....*doz.* ....@$2.00
Without Latch...*doz.* ....@$1.60
Reversible Self-Closing:
With Latch.....*doz.* ....@$1.75
Without Latch...*doz.* ....@$1.35
Western:
With Latch.....*doz.* $1.75
Without Latch.....*doz.* $1.15
Wrightsville Hardware Co.:
Shepard's or Clark's, doz. sets,

Nos.	1	2	3
Hinges with Latches.	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.80
Latches only	.70	.70	1.35

Pivot Hinges—
Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....45%

Spring Hinges—
Holdback, Cast Iron...$6.50@$6.75
Non-Holdback, Cast Iron$5.25@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....45%
Bardsley's Patent Checking..15%
Bommer Bros.:
Bommer Ball Bearing Floor Hinges 40%
Bommer Spring Hinges.....40%
No. 990 Wrot. Steel Hold Back, ℔ gr. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor Hinge 50%
Garden City Engine House....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, No. 14.....℔ gr. $9.00
Columbia, No. 18.....℔ gr. $25.00
Columbia, Adjustable, No. 7, ℔ gr. $12.00
Gem, new list.....30%
Clover Leaf.....℔ gr. $12.00
Oxford, new list.....30%
Lawson Mfg. Co., Matchless....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....℔ gr. $9.00
Ball Bearing Floor Hinge....50%
Ohio Detachable Screen Door Hinge .....℔ gr. $12.00
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr. $12.50
Ideal, No. 4.....℔ gr. $9.00
New Idea No. 1.....℔ gr. $9.00
New Idea, Double Acting....45%
New Idea Floor.....45%
Van Wagoner:
Ball Bearing.....25%
No. 777 Sh't Steel Holdb'k.℔ gro. pr.$9
} Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list December 20, 1904:

Light Strap Hinges...70%
H'vy Strap H'g's...75&5%
Light T Hinges...65%
Heavy T Hinges...60%
Extra H'y T H'g's...70&10%
Hinge Hasps...50%
Cor. Heavy Strap...75&5%
Cor. Ex. Heavy T...70&10%

Extra 10@10&5%

Screw Hook and Strap.
6 to 12 in. ..lb. 3¾¢
14 to 20 in. ..lb. 3½¢
22 to 36 in. ..lb. 3¼¢

Screw Hook and Eye:
¾ *to 1 inch*...lb. 6 ¢
⅝-*inch*...lb. 7 ¢
½-*inch*...lb. 9 ¢

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers....35%

Hods— Coal—

	Per doz.			
Inch	15	16	17	18
Galv. Open	$2.50	2.75	3.00	3.25
Jap. Open	$1.90	2.10	2.25	2.55
Galv. Funnel	$3.00	3.30	3.60	3.90
Jap. Funnel	$2.45	2.65	2.85	3.30

Masons' Etc.—

Avery-Caldwell Mfg. Co.:
Steel Brick...each $1.00
Steel Mortar...each $1.25
Cleveland Wire Spring Co.:
Steel Brick, No. 162...each $0.95
Steel Mortar, No. 158...each $1.25

Hoes— Eye—

Scovil and Oval Pattern...60&10@60&10&10%
Grub, list Feb. 23, 1899...70&10@75&10%
D. & H. Scovil...33⅓%

Handled—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Cronk's Weeding No. 1, $2.00; No. 2, $2.25
Ft. Madison Cotton Hoe...70&10&10%
Ft. Madison Crescent Cultivator Hoe, ₰ doz...70&10%
Ft. Madison Mattock Hoes:
Regular Weight...₰ doz. 66⅔%
Junior Size...₰ doz. $4.00
Ft. Madison Sprouting Hoe...₰ doz. 50%
Ft. Madison Dixie Tobacco Hoe...75&10&7½%
Kretsinger's Cut Easy...70&10%
Warren Hoe...45&10%
W. & C. Ivanhoe...75&2%
B. B. 6 in., Cultivator Hoe...$3.15
B. B., 6½ in...$3.35
Acme Wedding...₰ doz., net, $4.35
W. & C. L'ning Shuffle Hoe, ₰ doz. $4.85

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ₰ doz. $24.00...45&10%

Door—

Bardsley's...45%
Empire...50%
Pullman...50%

File and Tool—

Nicholson File Holders and File Handles...33⅓@40%

Fruit Jar—

Triumph Fruit Jar Holder, ₰ gross, $10.80; ₰ doz...$1.25

Hones—Razor—

Pike Mfg. Co., Belgian, German and Swaty...50%

Hooks—Cast Iron—

Bird Cage, Reading...40%
Bird Cage, Sargent's List...60&10%
Ceiling, Sargent's List, Nos. 29, 32, 33, 129, 132, 133 and 135...50&10&10%
Clothes Line, Reading List...40%
Clothes Line, Sargent's List...50&20&10%
Coat and Hat, Sargent's List...50&10%
Clothes Line, Stowell's...70%
Coat and Hat, Reading...45&20%
Coat and Hat, Stowell's...70%
Coat and Hat, Wrightsville...65%
Harness, Reading List...40%
Harness, Stowell's...60%
School House, Stowell's...70%

Wire—

Belt...80&10@..%
Wire C. & H. Hooks:...75&10@75&10&10%
Columbian Hdw Co., Gem...70&10%
Parker Wire Goods Co., King...75&10%
Van Wagoner, Coat and Hat...70%
Western W. G. Co. Molding...75%
Wire Goods Co.:
Acme...60&10%
Chief...70%
Crown...75%
Czar...65%
V Brace...75%
Czar Harness...80&10%

Wrought Iron—

Box, 6 in., per doz., $1.00; 8 in., $1.25; 10 in., $2.50.
Cotton...*doz. $1.05@$1.25*
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz. $1.75; Medium, $2.35; Heavy, $6.25
Grass, beat, all sizes, per doz. $1.60
Grass, common grades, all sizes, per doz...*$1.30*
Whiffletree...*lb. 5¼@6¢*
Hooks and Eyes:
Brass...*60&5@60&10&5%*
Malleable Iron...*70@70&10%*
Covert Mfg. Co. Gate and Scuttle Hooks...35%
Covert Saddlery Works' Self Locking Gate and Door Hook...60%
Ft. Madison Cut-Easy Corn Hooks, ₰ doz. $3.25 net
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—

See *Nails, Horse.*

Horseshoes—

See *Shoes, Horses.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition...*ft. 5 @ 6 ¢*
3-ply Standard...*ft. 8 @ 9 ¢*
4-ply Standard...*ft. 10 @11 ¢*
3-ply extra...*ft. 11 @13 ¢*
4-ply extra...*ft. 14 @16 ¢*
Cotton Garden, ¾-in., coupled:
Low Grade...*ft. 8 @ 9 ¢*
Fair Quality...*ft. 10 @11 ¢*

Irons— Sad—

From 4 to 10...*lb. 3 @3½¢*
B. B. Sad Irons...*lb. 3¼@3½¢*
Chinese Laundry...*lb. 4¾@5 ¢*
Chinese Sad...*lb. 4 @4¼¢*
Mrs. Potts', cents per set:

Nos.	50	55	60	65
Jap'd Tops	68	65	78	75
Tin'd Tops	71	68	81	78

New England Pressing...lb. 3¾@4¢

Pinking—

Pinking Irons...*doz. 60¢*

Irons, Soldering

See *Coppers.*

Jacks, Wagon—

Covert Mfg. Co.:
Auto Screw...30&2%
Steel...45%
Covert's Saddlery Works:
Daisy...60&10%
Victor...60%
Lockport...50%
Lane's Steel...50&10&2%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co.'s...25%

Kettles—

Brass, Spun, Plain...*20@25%*
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c...30%
Wilkinson Shear & Cutlery Co...50%

Corn—

Withington Acme, ₰ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—

Standard List...*75@75&10%*
C. E. Jennings & Co., Nos. 45, 46...60%
Jennings & Griffin, Nos. 41, 42...60%
Ohio Tool Co.'s...70%
Swan's...75%
Watrous...10%
L. & I. J. White...20&5&25%

Hay and Straw—

Serrated Edge, per doz. $5.75@6.00
Iwan's Sickle Edge...₰ doz. $3.50
Iwan's Serrated...₰ doz. $10.00

Mincing—

Buffalo...₰ gro. $13.00

Miscellaneous—

Farriers'...*doz. $3.00@3.25*
Westenholm's...₰ doz. $3.00@3.25

Knobs—

Base, 2½-inch, Birch, or Maple, Rubber Tip...*gro. $1.25@$1.50*
Carriage, Jap., all sizes...*gro. 40@45¢*
Door, Mineral...*doz. 65@70¢*
Door, Por. Jap'd...*doz. 70@75¢*
Door, Por. Nickel...*doz. $2.05@2.15*
Bardsley's Wood Door, Shutters, &c. 15%
Picture, Sargent's...60&10&10%

Lacing, Leather—

See *Belting, Leather—*

Ladders, Store, &c.—

Lane's Store...25%
Myers' Noiseless Store Ladders...50%
Richards Mfg. Co.:
Improved Noiseless, No. 112...50%
Climax Shelf, No. 113...50%
Trolley, No. 109...50%

Ladles, Melting—

L. & G. Mfg. Co. (low list)...25%
P. S. & W...50%
Reading...60%
Sargent's...50&10%

Lanterns—Tubular—

Regular Tubular, No. 0...*doz. $4.45@4.70*
Lift Tubular, No. 0...*doz. $4.75@5.00*
Hinge Tubular, No. 0...*doz. $4.75@5.00*
Other Styles...*40@40&5%*

Bull's Eye Police—

No. 1, 2¾-inch...*$2.75@3.00*
No. 2, 3-inch...*$3.00@3.25*

Lasts and Stands, Shoe—

Stowell's Atlas, Malleable Iron...50%
Stowell's Badger, Cast Iron...50%

Latches— Thumb—

Roggin's Latches, with screw...*doz. 35@40¢*

Door—

Cronk & Carrier Mfg. Co., No. 101, ₰ doz. $2.00
Cronk & Carrier Mfg. Co., Latch, Hasp and Staples...50%
Richards' Bull Dog, Heavy, No. 125...50&5%
Richards' Trump, No. 127...$1.50

Leaders, Cattle—

Small...*doz. 50¢; large, 60¢*
Covert Mfg. Co., Cotton and Hemp. 45%

Lifters, Transom—

R. & E...33⅓%

Lines—

Wire Clothes, Nos.	18	19	20
100 feet	$2.25	2.00	1.75
75 feet	$1.75	1.35	1.10

Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3...40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50...₰ gr. 20%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 5½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50...20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50...20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25...20%
Anniston Waterproof Clothes, 50 ft., ₰ gro., $24.00; Gilt Edge, $22.00; Air Line, $22.00; Acme, $17.00; Alabama, $15.00; Empire, $14.00; Advance, $13.50; Oriole, $20.00; Albemarle, $13.50; Eclipse, $12.50; Chicago, $11.00; Standard, $10.00; Columbia, $8.50; Allston, $12.50; Calhoun, $11.00.

Locks— Cabinet—

Cabinet Locks...*33⅓@33⅓&7½%*

Door Locks, Latches, &c.—

NOTE.—Net Prices are very often made on these goods.

Reading Hardware Co...40%
R. & E. Mfg. Co...40%
Sargent & Co...40&10%
Stowell's Steel Door Latches...50%

Elevator—

Stowell's...*net*

Padlocks—

Wrought Iron...*75&10&5@80&5%*
Net prices are general.
R. & E. Mfg. Co. Wrought Steel and Brass...75&10%

Sash, &c.—

Ives' Patent:
Bronze and Brass...62½%
Crescent...50&10%
Iron...62½%
Window Ventilating...60%
Robison Patent Ventilating Sash Lock...40%
Wrought Bronze and Brass...55%
Wrought Steel...55%
Pullman Patent Ventilating Lock...25%
Reading...40%

Machines—Boring—

Com. Upr't, without Augers...$2.00
Com. Ang'l'r, without Augers...$2.25
Swan's Improved...40&10%
Angular...
Jennings', Nos. 1 and 4...35&5%
Millers' Falls...5.75
Snell's, Rice's Pat. 2.50...2.75

Corking—

Reisinger Invincible Hand Power...₰ doz. $48.00

Fence—

Williams' Fence Machines...each, $5.50

Hoisting—

Moore's Anti-Friction Differential Pulley Block...30%
Moore's Hand Hoist, with Lock Brake...20%

Ice Cutting—

Chandler's...12½%

Washing—

Boss Washing Machine Co.:	Per doz.
Boss No. 1	$57.00
Boss Rotary	$54.00
Champion Rotary Banner No. 1	$54.00
Standard Champion No. 1	$48.00
Standard Perfection	$26.00
Cintl Square Western	$30.00
Uneeda American, Round	$30.00

Mallets—

Hickory...*45&5@50%*
Lignumvitæ...*45&5@50%*
Tinners' Hickory and Applewood...*doz. 45&5@50%*

Mangers, Stable—

Swett Iron Works...50%

Mashers, Vegetable—

Western, W. G. Co., Potato...60&10%

Mats, Door—

Elastic Steel (W. G. Co.), new list...50&10%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—

Enterprise Mfg. Co...25@30%
National list Jan. 1, 1902...30%
Parker's Columbia & Victoria...50&10@60%
Parker's Box and Side...50&10@60%
Swift, Lane Bros. Co...30%

Mowers, Lawn—

NOTE.—Net prices are generally quoted
Cheapest...*all sizes, $1.85@2.00*
Cheap...*all sizes, $2.00@2.50*
Better Grade...*all sizes, $2.50@4.50*

	12	14	16	18-in.
High Grade	$4.50	4.75	5.00	5.25

Continental...60&5%
Great American...70%
Great American Ball B'r'g, new list. 70%
Quaker City...70%
Pennsylvania...60&5%
Pennsylvania, Jr., Ball Bearing...60%
Pennsylvania Golf...50%
Pennsylvania Horse...33⅓&5%
Pennsylvania Pony...40&5%
Granite State:
Style A, Low Wheel...70&10&10&5%
Style B, Low Wheel...70&10&5%
Style C, High Wheel...70&10%
Style D, High Wheel...70%
Philadelphia:
Styles M., S., C., K., T...70&5%
Style A, all Steel...60&5%
Style E, High Wheel...70&10&5%
Drexel and Gold Coin, special list. 50%

Nails—

Wire Nails and Brads, Papered, List July 20, 1899...*85&10&10@90%*
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers' &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	19	...60&5%
Champlain	25	25	25	24	23	...50%
Coleman	13	12	12	11	11	...net
New Haven	23	21	20	19	18	...60&5%
Putnam	23	21	20	19	18	...33⅓%
New Putnam	19	18	17	16	16	..10&10%
Western						₰ lb 3½¢

Jobbers' Special Brands...*per lb. 8½@10¢*

Picture—

	1½	2	2½	3	3½ in.
Brass H'd	.45	.55	.60	.70	.. gro
Por. Head	1.10	1.10	1.10	..	gro

Nippers—

See *Pliers and Nippers.*

Nuts—

Cold Punched: *Off list.*
Mfrs. or U. S. Standard.
Square, Blank or Tapped...$5.00
Hexagon, Blank or Tapped...$5.45
Square, Blank, C. T...$5.30
Hexagon, Blank, C. T...$6.05
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square, Blank...$5.30
Hexagon, Blank...$5.20
Square, Tapped...$5.20
Hexagon, Tapped...$5.70

Oakum—

Best...*lb. 6¼@6½¢*
U. S. Navy...*lb. 5¾@6¢*
Navy...*lb. 4½@5¢*
Plumbers' Spun Oakum...*2½@3¢*
In carload lots ½¢ lb. off, f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper...*50&10%*
Tin or Steel...*65&10@70%*
Zinc...*65&10@70%*
Chase or Paragon:
Brass and Copper...*50&10%*
Tin or Steel...*65&10%*
Zinc...*65&10%*
Malleable, Hammers' Imp'd, Nos. 11, 12 and 13...20%
Malleable, Hammers' Old Pattern, Nos. 1, 2 and 3...50%
American Tube & Stamping Co.:
Spring Bottom Cans...70@70&10%
Railroad Oilers, &c...60@60&10%

Openers— Can—

Per doz.
Sprague, Iron Handle...*30@35¢*
Sprague, Wood Handle...*35@40¢*
Sardine Scissors...*$1.75@$3.00*
National...50&10%
Stowell's Sprague...₰ doz. 35@45¢
Vim Tin Shear and Can Opener, ₰ doz., 75c.; per gro., $7.50

Egg—

Nickel Plate...₰ doz., $2.00
Silver Plate...₰ doz., $4.00

Packing—

Asbestos Packing, Wick and Rope...*lb. 14@16¢*

Rubber—

(Fair quality goods.)

Sheet, C. I	8@10¢
Sheet, C. O. S	9@13¢
Sheet, C. B. S	10@14¢
Sheet, Pure Gum	50@65¢
Sheet, Red	40@50¢
Jenkins' '96, ₰ lb 80¢	25@25&5%

Miscellaneous—

American Packing...lb. 7@10 ¢
Cotton Packing...*lb. 16@25 ¢*
Italian Packing...*lb. 9@12½¢*
Jute...*lb. 4@ 4½¢*
Russia Packing...*lb. 8@11 ¢*

Pails, Creamery—

S. S. & Co., with gauges—No. 1, $6.25; No. 2, $6.50 ₰ doz.

Pails, Water, Well, &c.—

See *Buckets.*

Pans— Dripping—

Standard List. 60&10@60&10&12½%

Fry—

Common Lipped:

Nos.	1	2	3	4	5
Per doz.	$0.75	0.80	0.90	1.10	1.30

Refrigerator, Galva.—

Inch	12	14	16	18
Per doz.	$1.95	2.25	2.80	3.15

Roasting and Baking—

Regal, S. S. & Co., ₰ doz., Nos. 5, $4.50; 10, $5.25; 20, $5.75; 30, $6.25.
Savory, ₰ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ₰ gro.:

No.	40	50	60	140	150	160
	$30.00	35.00	42.00	34.00	39.00	48.00

Paper—Building Paper

Asbestos:	*lb.*
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft.	*6¢*
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lbs., per 100 sq. ft.	*8¢*
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.	*10¢*

Ready Roofing

Per roll
Rosin Sized Sheathing: 500 sq. ft.
Light weight, 25 lbs. to roll...*35@40¢*
Medium weight, 30 lbs. to roll...*40@45¢*
Heavy weight, 40 lbs. to roll...*56@60¢*
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb. ton...*$38.00@40.00*
Red Rope Roofing, 250 sq. ft. per roll...*$1.75*

Tarred Paper—

1 ply (roll 500 sq. ft.), ton...*$32.50@35.50*
2 ply, roll 108 sq. ft....*55@60¢*
3 ply, roll 108 sq. ft....*72@85¢*

Slater's Felt (roll 500 sq. ft.) .75¢
R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.) $2.75

Sand and Emery—

Flint Paper and Cloth .60@60&10%
Garnet Paper and Cloth 25%
Emery Paper and Cl'h .50&10@60%

Parers— Apple—

Advance	℔ doz.	$4.00
Baldwin	℔ doz.	$4.00
Bonanza Improved	each	$6.50
Daisy	℔ doz.	$4.00
Dandy	each	$7.50
Eureka Improved	each	$20.00
Family Bay State	℔ doz.	$15.00
Improved Bay State	℔ doz.	$36.00
Little Star	℔ doz.	$5.00
New Lightning	℔ doz.	$7.00
Reading 72	℔ doz.	$3.25
Reading 78	℔ doz.	$6.25
Rocking Table	℔ doz.	$6.20
Turn Table '98	℔ doz.	$6.00
White Mountain	℔ doz.	$5.00

Potato—

Saratoga	℔ doz.	$7.00
White Mountain	℔ doz.	$6.00

Picks and Mattocks—

List Feb. 23, 1899 ..... 75@75&5%
Cronk's Handled Garden Mattock, ℔ doz., $6.40 ..... 33⅓%

Pinking Irons—

See *Irons, Pinking.*

Pins, Escutcheon—

Brass ..... 60@60&10%
Iron, list Nov. 11, '85 .. 60@60&10%

Pipe, Cast Iron Soil—

Carload lots.

Standard, 2-6 in. 60%
Extra Heavy, 2-6 in. 70%
Fittings 75%

Pipe, Merchant—

Consumers, Carloads.

	Steel. Blk.	Galv.	*Iron.* Blk.	Galv.
¼ & ⅜ in.	71%	55%	68½%	52½%
½ & ⅝ in.	75%	63%	72½%	60½%
¾ to 6 in.	79%	69%	77%	67%
7 to 12 in.	74%	59%	72%	56½%

Pipe, Vitrified Sewer—

Carload lots.

Standard Pipe and Fittings, 2 to 24 in.:
New England 68%
New York and New Jersey .. 71%
Maryland, Delaware, E. Pa. 75%
West. Pa. and West Va. 77%
Virginia 76%
Ohio, Michigan and Ky. 77%
Indiana 77%

NOTE.—Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:

	C. L.	L. C. L.
5 in., per 100 joints	$7.00	$8.00
6 in., per 100 joints	7.50	8.50
7 in., per 100 joints	8.50	9.50

Planes and Plane Irons—Wood Planes—

Bench, first qual. ..... 40&10%
Bench, Second qual. ..... 50&10%
Molding ..... 33⅓&10%
Bailey's (Stanley R. & L. Co.) 40%
Chapin-Stephens Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality .... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Toy and German ..... 40@40&10%
Chaplin's 60%
Ohio Tool Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality .... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Adjustable Wood Bottom 60%
Unicn 60%

Iron Planes—

Bailey's (Stanley R. & L. Co.) 40%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) 35%
Ohio Tool Co.'s Iron Planes 60%
Sargent's ..... 60&10%
Union 60%

Plane Irons—

Wood Bench Plane Irons ..... 25&10@30%

Buck Bros. 30%
Chapin-Stephens Co. ..... 30@30&10%
Ohio Tool Co. 30%
Stanley R. & L. Co. 35%
Union 50%
L. & I. J. White ..... 20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse ..... ℔ doz. $8.50

Plates—

Felloe ..... lb. 5¾@11¼¢
Self-Sealing Pie Plates (S., S. & Co.). ℔ doz. $2.00 ..... 50%

Pliers and Nippers—

Button Pliers ..... 75&10@80%
Gas Burner, per doz., 5 in., $1.25 @ $1.30; 6 in., $1.45 @ $1.50.
Gas Pipe.. 7 | 8 | 10 | 12-in.
$2.00 | $2.25 | $3.00 | $3.75
Acme Nippers ..... 50&5%
Cronk & Carrier Mfg. Co.:
American Button ..... 75&10%
Cronk's 60%
Stub's Pattern 50%
Combination and others 33⅓%
Heller's Farriers' Nippers, Pincers and Tools ..... 40&10@40&10&10%
The Nettleton Mfg. Co. Reversible Cutting Nippers 50%
P., S. & W. Tinners' Cutting Nippers 60%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—

Chapin-Stephens Co.:
Plumbs and Levels ..... 30@30&10&10%
Chapin's Imp. Brass Cor. 40@40&10&10%
Pocket Levels ..... 30@30&10&10%
Disston's Plumbs and Levels 70%
Disston's Pocket Levels 70%
C. E. Jennings & Co.'s Iron 33⅓%
C. E. Jennings & Co.'s Iron, Adjustable ..... 40&7½%
Stanley R. & L. Co. 45%
Stanley's Duplex 35%
Woods' Extension 33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ℔ doz., No. 1, $6.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00 ..... 50%

Points, Glaziers'—

Bulk and 1-lb. papers, lb. 8½@9 ¢
½-lb. papers ..... *lb.* 9 @9½¢
¼-lb. papers ..... *lb.* 9¾@10¼¢

Pokes, Animal—

Ft. Madison Hawkeye ..... ℔ doz. $3.25
Ft. Madison Western ..... ℔ doz. $4.00

Police Goods—

Manufacturers' Lists ... 25@25&5%
Tower's 25%

Polish—Metal, Etc—

Glasbrite, No. 2, 5 lb can (powder), each, $1.25; ℔ doz., $12.00; No. 2, 10 lb can (cake), each, $2.50; ℔ doz., $24.00.
Prestoline Liquid, No. 1 (½ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $5.72 ..... 40%
Prestoline Paste 40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 50¢; ℔ gro. $4.50; ½ lb boxes, ℔ doz. $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25; ℔ gro., $12.00.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75; ℔ gro., $18.00.
Wynn's White Silk, ½ pt. cans, ℔ doz. $2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ½ pt. cans, ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can ..... each, $0.65
Ladd's Black Beauty Liquid, per 100 tins $6.75
Joseph Dixon's, ℔ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ℔ lb 14¢
Fireside ..... ℔ gr. $2.50
Gem, ℔ gr. $4.50 ..... 10%
Japanese ..... ℔ gr. $3.50
Jet Black ..... ℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans, ℔ doz. $1.50
Wynn's:
Black Silk, 5 lb pail ..... each 70¢
Black Silk, ½ lb box ..... ℔ doz. $1.00
Black Silk, 5 oz. box ..... ℔ doz. $0.75
Black Silk, ½ pt. liq. ..... ℔ doz. $1.00

Poppers, Corn—

1 qt., Square ..... *gro.* $9.00
1 qt., Round ..... *gro.* $10.00
1½ qt., Square ..... *gro.* $11.00
2 qt., Square ..... *gro.* $13.00

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts ..... each $1.30

Potato Parers—

See *Parers, Potato.*

Pots, Glue—

Enameled 40%
Tinned 35%

Powder—

In Canisters:
Duck, 1 lb ..... *each* 45¢
Fine Sporting, 1 lb .... *each* 75¢
Rifle, ½-lb ..... *each* 15¢
Rifle, 1-lb ..... *each* 25¢
In Kegs:
12½-lb. kegs $3.50
25-lb. kegs $4.50
King's Semi-Smokeless:
Keg (25 lb bulk) $6.50
Half Keg (12½ lb bulk) $3.50
Quarter Keg (6¼ lb bulk) $1.90
Case 24 (1 lb cans bulk) $8.50
Half case (1 lb cans bulk) $4.50

King's Smokeless:	Shot Gun.	Rifle.
Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk)	7.25	8.75

Robin Hood Sm'less Shot Gun .. 50&20%

Presses—Fruit and Jelly—

Enterprise Mfg. Co. ..... 20@25%

Seal Presses—

Morrill's No. 1, ℔ doz., $20.00 ..... 50%

Pruning Hooks and Shears

See *Shears.*

Pullers, Cork—

Invincible Cork Puller $21.00

Pullers, Nail—

Cyclops 50%
Miller's Falls, No. 3, ℔ doz., $12.00 ..... 33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 ..... 50%
Pearson No. 1, Cyclone Spike Puller, each $30.00 ..... 50%
Pelican, ℔ doz. $9.00 ..... 40&10%
Scranton, Case Lots:
No. 2B (large) $5.50
No. 3B (small) $5.00
Smith & Hemenway Co.:
Diamond B, No. 2, case lots, ℔ doz. $6.00
Diamond B, No. 3, case lots, ℔ doz. $5.50
Giant No. 1, ℔ doz. $18; No. 2, $16.50; No. 3, $15 ..... 33⅓%
Staple Pullers 60%
Parrot Tack and Stub Puller, ℔ doz., 75c.; ℔ gro., $6.00

Pulleys, Single Wheel—

Inch	1½	1¾	2	3
Awning or Tackle, doz.	$0.30	.45	.60	1.05
Hay Fork, Swivel or Solid Eye, doz., ¼ in., $1.25; 5 in., $1.55				
Inch	2	2¼	2½	
Hot House, doz.	$0.65	.85	1.20	
Inch	1¼	1½	1¾	2
Screw, doz.	$0.16	.19	.23	.30
Inch	1¾	2	2¼	2½
Side, doz.	$0.25	.40	.55	.60
Inch	1½	1¾	2	2½

Stowell's:
Ceiling or End, Anti-Friction .. 60&10%
Dumb Waiter, Anti-Friction .. 60&10%
Electric Light 60%
Side, Anti-Friction ..... 60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz, 1¾ and 2 in. ..... 16@19¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in. .. 16@19¢
Acme ..... 1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 7, 2 in. ..... ℔ doz. 50%
Grand Rapids All Steel Noiseless .. 50%
Ideal ..... 70&10%
Niagara ..... 1¾ in., 16¢; 2 in., 19¢
No. 28, Troy ..... 1¾ in., 14½¢; 2 in., 16½¢
Star ..... 1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern ..... 60@60&10%
Pitcher Spout ..... 80@80&10%
Wood Pumps, Tubing, &c. 45@50%
Barnes Dbl. Acting (low list) 50%
Barnes' Pitcher Spout ..... 75&10&5%
Contractors' Rubber Diaphragm No. 2, B. & L. Block Co. $16.00
Daisy Spray Pump ..... ℔ doz. $6.75
Flint & Walling's, Fast Mail Hand, (low list) 55%
Flint & Walling's Fast Mail (low list) ..... 55&5%
Flint & Walling's Tight Top Pitcher .80%
National Specialty Mfg. Co., Measuring, $6.00 ..... 30%
Mechanical Sprayer $6.00
Myers' Pumps (low list) 50%
Myers' Power Pumps 50%
Myers' Spray Pumps ..... 50&10%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch...	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch...	3	3¼	3½	3¾	4
	$3.30	3.60	3.85	4.10	4.40

Plunger Cup Leathers—Per 100:

Inch...	2½	3	3½	4
	$2.75	3.85	5.00	6.00

Punches—

Saddlers' or Drive, good ..... *doz.* 50@75¢
Spring, single tube, good quality ..... $1.75@2.00
Revolving (4 tubes) ..... *doz.* $3.50@3.75
Bemis & Call Co.'s Cast St'l Drive .50%
Bemis & Call Co.'s Check 55%
Morrill's Nos. 1AA, 1A, 1B, 1C, $15.00 ..... 50%
Hercules, 1 die, each $5.00 ..... 50%
Niagara Hollow Punches 40%
Niagara Solid Punches ..... 55&10%
Steel Screw, B. & K. Mfg. Co. 50%
Tinners' Hollow, P., S. & W. Co. .. 40%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.41 ..... 60%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron ..... 2½@2¾¢
Sliding Door, Wrought Brass, 1½ in., lb., 36¢ 30%
Allith Mfg. Co.:
No. 1, Reliable Hgr. Track, ℔ ft. 5¼¢
No. 2, Reliable Hgr. Track, ℔ ft. 7¢
Cronk's:
Double Braced Steel Rail .. ℔ ft. 2¾¢
O. N. T. Rail ..... 2¾¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.00; 1¼ x 3-16 in., 3.50.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.10; 1¼ x 3-16 in., $3.60.
Lane's:
Hinged Track, ℔ 100 ft., 1 in., $3.40; 1¼ in., $4.10.
O. N. T., ℔ 100 ft., 1 in., $2.75; 1¼ in., $3.50; 1½ in., $4.00.
Standard, 1¼ in. ..... ℔ 100 ft. $4.00
Lawrence Bros.:
℔ 100 ft. No. 201, $4.00; No. 202, $4.00
New York, 1 x 3-16 in., ℔ 100 ft. $2.75
McKinney's:
Hinged Hanger Rail, ℔ ft., 11¢ .. 50%
None Better ..... ℔ ft. 3¾¢
Standard ..... ℔ ft. 4 ¢
Myers' Stayon Track ..... 60&10%
Richards' Mfg. Co.:
Common 1 x 3-6 in., $2.25; 1¼ x 3-16, $2.50; 1¼ x 3-16, $2.75.
Special Hinged Hanger Rail .. 60&10%
Lag Screw Rail, No. 65 ..... 50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 35, 20¢.
Safety Door Hanger Co.'s Storm King Safety 60%
Safety Door Hanger Co.'s U. S. Standard 60%
Stowell's:
Cast Rail ..... ℔ ft. 1¾¢
Steel Rail, Plain 25%
Wrought Bracket, 1 3-16 in. .. ℔ ft. 3¢
Wrought Bracket, 1¼ x 5-16 .. ℔ ft. 7¢
Swett's Hylo, ℔ ft. 11¢ 60%
P. L. B. Steel Rail ..... ℔ 100 ft. $3.00
No. 0, 1 x 3-16 ..... ℔ 100 ft. $2.75

Rakes—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Fort Madison Red Head Lawn $3.25
Fort Madison Blue Head Lawn $2.70
Jackson Lawn, 29 and 30 teeth, doz., net $4.25
Cronk's:
New Champion Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00 .. 75%
Victor Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00 ..... 80%
Queen City Lawn, ℔ doz., 20 teeth, $3.45; 24, $3.60 ..... net.
Anticlog Lawn, ℔ doz. $4.00
Malleable Garden ..... 70&10%
Kohler's:
Lawn Queen, 20-tooth ..... ℔ doz. $3.45
Lawn Queen, 24-tooth ..... ℔ doz. $3.60
Paragon, 20-tooth ..... ℔ doz. $2.75
Paragon, 24-tooth ..... ℔ doz. $3.00
Steel Garden, 14-tooth .... ℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00
Weldless Steel Garden ..... 75&5%

Rasps, Horse—

Disston's 75%
Heller Bros.' ..... 70&5@70&10&5%
McCaffrey's American St'd .. 60&10&5%
New Nicholson ..... 70&10@75%
See also Files.

Razors—

Boras—I C 60%
Fox Razors, No. 42 .. ℔ doz. $20.00
Fox Razors, No. 44 .. ℔ doz. $20.00
Fox Razors, No. 82, Platina .. ℔ doz. $25.00
} Dis. 40%
Red Devil 50%
Silberstein:
Carbo Magnetic $18.00
Griffon, No. 65 ..... $15.00
Griffon, No. 90 ..... $12.00
All other Razors 40%

Safety Razors—

Silberstein 40%

Reels, Fishing—

Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo 20%
Aluminum, German Silv., Bronze .25%
1240 N, 124 N 30%
3004 N, 06 N, 6 RM, G 9 ..... 25%
4 N, 6 PN, 24 N, 26 PN 20%
2904 P 33⅓%
2904 PN 33⅓%
0924 N 33⅓%
02084 N 33⅓%
00294 PN 33⅓%
802 N 33⅓%
986 PN, 2904 N, 974 PN 25%
5009 PN, 5009 N 20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR 20%
304 P, 304 PN, 00304 P, 00304 PN .33⅓%

Registers—*List July 1, 1903.*

Japanned, Electroplated and Bronzed ..... 70&10%
Bronzed 75%

Revolvers—

Single Action ..... 95¢@$1.00
Double Action, except 44 cal. $1.85
Double Action, 44 caliber $2.00
Automatic $3.45
Hammerless $4.00
Thayer Robertson & Cary:
Automatic ..... each $2.75
Hammerless ..... each $3.25

Riddles, Hardware Grade

16 in. ..... *per doz.* $2.25@$2.50
17 in. ..... *per doz.* $2.50@$2.75
18 in. ..... *per doz.* $2.75@$3.00

Rings and Ringers—Bull Rings—

	2	2½	3 inch.
Steel	$0.70	0.75	0.80 doz.
Copper	$1.00	1.15	1.40 doz.

Rea's Improved Self-Piercing, Copper, 2 in., ℔ doz., $1.25; 2½ in., $1.50; 3 in., $1.75.

Hog Rings and Ringers—

Hill's Rings, gro. boxes .$4.00@4.50
Hill's Ringers, Gray Iron ..... *doz.* 50@55¢
Hill's Ringers, Malleable Iron ..... *doz.* 70@75¢.
Blair's Rings...per gro. $4.75@5.25
Blair's Ringers..per doz. $0.60@ .65
Brown's Rings..per gro. $5.00@5.50
Brown's Ringers.per doz. $0.60@ .65

Rivets and Burrs—

Copper ..... 50&10@50&10&5%
Iron or Steel ..... 75@75&5%

Rollers—

Acme, Stowell's Anti-Friction 50%
Barn Door, Sargent's list 60%
Cronk's Stay No. 65, $0.90; No. 50 ..... $1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56 ..... $0.84
Lane's Stay 40%
Richards' Stay:
Handy Adj. and Reversible No. 53 .75¢
O. K. Adj. and Reversible No. 58 .50¢
Lag Screw, Nos. 55 and 57 ..... 50%
Underwriters', Nos. 59, 60 ..... 50%
Favorite, No. 54 ..... 60%
Stowell's Barn Door Stay .. ℔ doz. $1.00
Swett's Anti-Friction 50%
Screw and Spike Stay ..... ℔ doz. 65¢
Hinge Adjustable Stay ..... ℔ doz. 90¢

Rope—

Manila, 7-16 in. diam. and larger:
Pure ..... *lb.*, 12½¢
Sisal, 7-16 in. diam. and larger:
Pure ..... *lb.*, 10¢
Sisal, 7-16 in. diam. and larger:
No. 2 quality ..... *lb.*, 8¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Mixed ..... *lb.*, 8¢
Pure ..... *lb.* 10¢
Sisal, Tarred, Medium Lath Yarn, Coarse and Untarred:
Mixed ..... *lb.* 8¢
Pure ..... *lb.* 10¢
Best, ¼-in. and larger. 16½@18¢
Medium, ¼-in. and larger, 15½@16½¢
Common, ¼-in. and larger.. 10¢
In coils, ½¢ advance.
Jute Rope:
Thread No. 1, ¼-in. & up. lb. 6¼¢
Thread No. 2, ¼-in. & up, lb. 5¾¢
Old Colony Manila Transmission Rope ..... ℔ lb 17½¢

Wire Rope—

Galvanized ..... 37½&2½%
Plain ..... 45&2½%

Ropes, Hammocks—
Covert Mfg. Co.:
Jute 50%
Sisal ..... 30&10%
Covert Saddlery Works ..... 60&5%

Rulers, Desk—
Stimpson & Son:
Boxwood and Maple ..... 30&10%

Rules—
Boxwood ..... *60&10&10%*
Ivory ..... *35&10@35&10&5%*
Chapin-Stephens Co.:
Boxwood ..... 60@60&10%
Flexifold ..... 27½&10&10&2½%
Ivory ..... 35@35&10&10%
Miscellaneous ..... 50@50&10&10%
Combination ..... 55@55&10%
Stationers' ..... 10@10&10%
Keuffel & Esser Co.:
Folding, Wood ..... 35&10%
Folding, Steel ..... 33⅓&10%
Lufkin's Steel ..... 50&10%
Lufkin's Lumber 60%
Stanley R. & L. Co.:
Boxwood 62½%
Ivory 45%
Miscellaneous 60%
Zig Zag 40%
Zig Zag, Pin Joint 42½%
Upson Nut Co.:
Boxwood ..... 60@60&10%
Ivory ..... 35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—
See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
Circular 50%
Band ..... 50&10@60%
Cross Cuts ..... 35&5%
Mulay, Mill and Drag 50%
One-Man Saw 40%
Wood Saws 40%
Hand, Compass, &c 40%
Chapin-Stephens Co.:
Turning Saws and Frames ..... 30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws ..... 30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth 50%
Band, 2 to 14 in. wide 60%
Band, ⅛ to 1⅛ 60%
Crosscuts 50%
Narrow Crosscuts 50%
Mulay, Mill and Drag 50%
Framed Woodsaws 35%
Woodsaw Blades 35%
Woodsaw Rods 25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8 ..... 25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination 30%
Compass, Key Hole, &c 25%
Butcher Saws and Blades 35%
C. E. Jennings & Co.'s:
Back Saws 25%
Butcher Saws 30%
Compass and Key Hole Saws ..... 35&5%
Framed Wood Saws 30%
Hand Saws ..... 20&2½%
Wood Saw Blades 30%
Millers Falls:
Butcher Saws ..... 15&10%
Star Saw Blades ..... 15&10%
Peace & Richardson's Hand Saws 30%
Simonds':
Circular Saws 50%
Crescent Ground Cross Cut Saws 35%
One-Man Cross Cuts ..... 40&10%
Gang Mill, Mulay and Drag Saws 50%
Band Saws 50%
Back Saws ..... 25@25&7½%
Butcher Saws ..... 35@35&7½%
Hand Saws ..... 25@25&7½%
Hand Saws, Bay State Brand 45%
Compass, Key Hole, &c ..... 25@25&7½%
Wood Saws ..... 35@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws ..... 40&10@50%
Butcher Saws Blades ..... 35@40%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws 50%

Hack Saws—
Atkins' Hack Saw Blades A A A 25%
Disston's:
Concave Blades 25%
Keystone 40%
Hack Saw Frames 20%
Fitchburg File Works, The Best 35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180 ..... 40&7½%
Hack Saws, Nos. 175, 180, complete ..... 40&7½%
Goodell's Hack Saw Blades 40%
Griffin's Hack Saw Frames ..... 35&5&10%
Griffin's Hack Saw Blades ..... 35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades 35%
Diamond Hack Saw Frames 50%
Star Hack Saws and Blades ..... 15&10%
Sterling Hack Saw Blades ..... 30&10&5%
Sterling Hack Saw Frames ..... 30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00 ..... 10%
Victor Hack Saw Blades 25%
Victor Hack Saw Frames 40%

Scroll—
Barnes' No. 7, $15 ..... 25%
Barnes' Scroll Saw Blades 40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $118; with boring attachment, $120 ..... 20%
Lester, complete, $10.00 ..... 15&10%
Rogers, complete, $6.00 ..... 15&10%

Scalers, Fish—
Covert's Saddlery Works ..... 60&10%

Scales—
Family, Turnbull's ..... *50@50&10%*
Counter:
Hatch, Platform, ½ oz. to 4 lbs. ..... *doz. $5.50*
Two Platforms, ½ oz. to 8 lbs. ..... *doz. $16.00*
Union Platform, Plain ..... *$1.70@1.90*
Union Platform, Stpd. ..... *$1.85@2.15*
Chatillon's:
Eureka 25%
Favorite 40%
Crocers' Trip Scales 50%
Chicago Scale Co.:
The "Little Detective" ..... 25 lbs 50%
Union or Family No. 2 ..... 60%
Portable Platform (reduced list) 50%
Wagon or Stock (reduced list) ..... 25@35%
"The Standard" Portables 50%
"The Standard" R. R. and Wagon 50%

Scrapers—
Box, 1 Handle ..... *doz. $2.00@2.25*
Box, 2 Handle ..... *doz. $2.60@2.85*
Ship ..... *Light, $2.00; Heavy, $4.50*
Adjustable Box Scraper (S. R. & L. Co.), $6.00 ..... 45%
Chapin-Stephens Co., Box ..... 30@30&10&10%

Screens, Window and Frames—
Air Line Pattern Screens ..... 60&10%
Flyer Pattern Screens ..... 60&10@60&10&5%
Maine Screen Frames ..... 40&10&5%
Perfection Screens ..... 60&10@60&10&5%
Phillips' Screen Frames ..... 60&5@60&10%
See also *Doors.*

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@2.75; 1¼, $3.00@3.25; 1¼, $3.50@3.75
Bench, W'd, Beech ..... *doz. 30@30&5%*
Hand, Wood ..... *30@30&5%*
R. Bliss Mfg. Co., Hand ..... 30@30&10%
Chapin-Stephens Co., Hand ..... 30@30&10%
Ohio Tool Co., Bench and Hand 30%

Coach, Lag and Hand Rail—
Lag, Cone Point, list Oct. 1, '99 ..... *75&15@—%*
Coach, Gimlet Point, list Oct. 1, '99 ..... *75&10@—%*
Hand Rail, list Jan. 1, '81 ..... *70&10@75%*

Jack Screws—
Standard List ..... *80@80&5%*
Millers Falls ..... 50&10&10%
Millers Falls, Roller ..... 50&10%
P., S. & W 50%
Sargent ..... 70&10%
Swett Iron Works ..... 75&10@80&5%

Machine—
List Jan. 1, '98:
Flat or Round Head, Iron ..... *50@50&10%*
Flat or Round Head, Brass ..... *50@50&10%*

Set and Cap—
Set (Iron) *80%*
Set (Steel), net advance over Iron *25%*
Sq. Hd. Cap *75%*
Hex. Hd. Cap *75%*
Rd. Hd. Cap ..... *60&10%*
Fillister Hd. Cap ..... *60&10&10%*

Wood—
List July 23, 1903.
Flat Head, Iron ..... *87½&10@..%*
Round Head, Iron ..... *85 &10@..%*
Flat Head, Brass ..... *85 &10@..%*
Round Head, Brass ..... *80 &10@..%*
Flat Head, Bronze ..... *77½&10@..%*
Round Head, Bronze ..... *75 &10@..%*
Drive Screws ..... *87½&10%*

Scroll Saws—
See *Saws, Scroll.*

Scythes— *Per doz.*
Grass, No. 1, Plain Finish *$6.25*
Clipper, Bronzed Webb *$6.50*
No. 3 Clipper, Pol'd Webb *$6.75*
No. 6 Clipper & Solid Steel *$7.00*
Bush, Weed & Bramble, No. 2 ..... *$6.50*
Grain, No. 1 ..... *$8.25*
Bronzed Webb, No. 1 ..... *$8.50*
Nos. 3 & 4 Clipper, Grain *$8.75*
Solid Steel No. 6 ..... *$9.25*

Seeders, Raisin—
Enterprise ..... 25@30%

Sets— Awl and Tool—
Aiken's Sets, Awl and Tools:
No. 20, ₱ doz., $10.00 ..... 60&10%
Fray's Adj. Tool Handles, Nos. 1, $12; 2, $13; 3, $12; 4, $9; 5, $7 ..... 50%
C. E. Jennings & Co.'s Model Tool Holders 30%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18 ..... 15&10%

Garden Tool Sets—
Ft. Madison Three Plows, Hoe, Rake and Shovel ..... ₱ doz sets $9.00

Sets, Nail—
Octagon ..... *gro. $3.50@3.75*
Buck Bros. 27½%
Cannon's Diamond Point ..... ₱ gro. $12.40
Mayhew's ..... ₱ gro. $9.00
Snell's Cor'gated Cup Pt. ..... ₱ gro. $7.20
Snell's Knurled, Cup Pt. ..... ₱ gro. $7.20
Springfield Mach. Screw Co.:
Diamond Knurled Cup Pt. ..... ₱ gro. $7.80

Rivet—
Regular list ..... *75@75&10%*

Saw—
Aiken's:
Genuine ..... 50&10%
Imitation ..... 50&10%
Atkin's:
Criterion 40%
Adjustable 40%
Bemis & Call Co.'s:
Cross Cut 30%
Plate 20%
Disston's Star and Monarch 25%
Morrill's No. 1, $15.00 ..... 50%
Nos. 3 and 4, Cross Cut, $20.00 ..... 50%
No. 5, Mill, $30.00 ..... 50%
Nos. 10, 11, 95, $15.60 ..... 50%
No. 1 Old Style, $10.00 ..... 50%
Special, $16.25 ..... 50%
Giant Royal Cross Cut ..... ₱ doz. $8.00
Royal, Hand ..... ₱ doz. $6.50
Taintor Positive ..... ₱ doz. $6.75

Shaving—
Fox Shaving Sets, No. 20 ..... ₱ doz., net, $24.00
Smith & Hemenway Co.'s 60%

Sharpeners, Knife—
Chicago Wheel & Mfg. Co 70%
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ₱ doz $1.50
Mounted Kitchen Sand Stone, ₱ doz $1.50
Natural Grit Carving Knife Hones, ₱ doz $3.00
Quick Cut Emery Carving Knife Hones, ₱ doz $1.50
Quick Edge Pocket Knife Hones, ₱ doz $2.50
} 40%

Skate—
Smith & Hemenway Co 20%

Shaves, Spoke—
Iron ..... *doz. $1.10@1.25*
Wood ..... *doz. $1.75@2.25*
Bailey's (Stanley R. & L. Co.) 45%
Razor Edge (Stanley R. & L. Co.) 35%
Chapin-Stephens Co ..... 30@30&10&10%
Goodell's, ₱ doz. $9.00 ..... 15&10%
Wood's F1 and F2 ..... 50%

Shears—
Cast Iron..	*7*	*8*	*9 in.*	
Best	*$16.00*	*18.00*	*$0.00*	*gro.*
Good	*$13.00*	*15.00*	*17.00*	*gro.*
Cheap	*$5.00*	*6.00*	*7.00*	*gro.*

Straight Trimmers, &c.:
Best quality Jap ..... *70@70&10%*
Best quality, Nickel ..... *60@60&10%*
Fair quality, Jap ..... *80@80&5%*
Fair quality, Nickel ..... *75@7"&10%*
Tailors' Shears ..... *40@40&10%*
Acme Cast Shears ..... 40@40&5%
Heinisch's Tailor's Shears 10%
Wilkinson's Sheep, 1900 list ..... 60&10%

Tinners' Snips—
Steel Blades ..... *20&5@20&10%*
Steel Laid Blades ..... *40&10@50%*
Forged Handles, Steel Blades, Berlin ..... 50@50&5%
Heinisch's Snips 40%
Jennings & Griffin Mfg. Co.'s, 6½ to 10 in 50%
Niagara Snips 40%
P., S. & W. Forged Handles 20%

Pruning Shears—
Cronk's Hand Shears 33⅓%
Cronk's Wood Handle Shears 33⅓%
Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00 ..... 25%
Disston's Pruning Hook, ₱ doz. $12.00 ..... 25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades ..... 50&10%
P., S. & W. Co 33⅓%
Wilkinson's Hedge, 1900 list ..... 50&10%
Wilkinson's Lawn and Border 50%

Sheaves—Sliding Door—
Stowell's Anti-Friction 50%
Patent Roller, Hatfield's, Sargent's list ..... 70&10%
Reading 40%
R. & E. list 33⅓%
Wrightsville Hatfield Pattern 80%

Sliding Shutter—
Reading list 40%
R. & E. list 33⅓%
Sargent's list ..... 10&10%

Shells—Shells, Empty—
Brass Shells, Empty:
Climax, Club, Rival, 10 and 12 gauge ..... 65&10%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge ..... 25&10%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge ..... 20&5%
Climax, Union, League, New Rival, 10 and 12 gauge ..... 25&5%
Climax, Union, League, New Rival, 14, 16 and 20 gauge ..... 20&5%
Expert, Metal Lined and Pigeon, 10 12, 16 and 20 gauge ..... 33⅓&5%
Robin Hood, Low Brass ..... 20&10%
Robin Hood, High Brass ..... 30&10%

Shells, Loaded—
Loaded with Black Powder *40%*
Loaded with Smokeless Powder, medium grade ..... *40&5%*
Loaded with Smokeless Powder, high grade ..... *40&10&10%*
Robin Hood Smokeless Powder:
Robin Hood, Low Brass 50%
Comets, High Brass ..... 50&10&5%

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:
Iron ..... *per keg $4.00*
Steel ..... *per keg $3.75*
Burden's, all sizes ..... ₱ keg $3.90

Shot—
Drop, up to B, 25-lb. bag *$1.70*
Drop, B and larger ..... *per 25-lb. bag, $1.95*
Buck, 25-lb. bag *$1.95*
Chilled, 25-lb. bag *$1.95*

Shovels and Spades—
Association List, Nov. 15, 1902 ..... *40%*

Snow Shovels—
Long Handle ..... *$2.75@$3.00*
Wood and Mail, D. Handle ..... *$3.25@$3.50*

Sieves and Sifters—
Hunter's Imitation ..... *gro. $10.50@11.00*
Hunter's Genuine ..... *per gro. $12.00@12.50*
Buffalo Metallic Blued, S. S. Co., ₱ gr.:

14&16	16&18	18&20
$13.20	$13.50	$14.40

Shaker (Barler's Pat.) Flour Sifters, ₱ doz., $2.00 ..... 25%

Sieves, Seamless Metallic
Per dozen.

Mesh	*14*	*16*	*18*	*20*
Iron Wire	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested ..... *doz. $0.90@0.95*
Mesh 20, Nested ..... *doz. $1.00@1.05*
Mesh 24, Nested ..... *doz. $1.30@1.40*

Sinks, Cast Iron—
Standard list ..... *60@60&10%*
Barnes' low list ..... 60&5%
NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron ..... *80@80&10%*
Steel ..... *40@40&10%*

Slates, School—
Factory Shipments.
"D" Slates ..... *50@50&10%*
Eureka, Unexcelled Noiseless ..... *60&5 tens*
Victor A, Noiseless ..... *60&5 tens &5%*

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German ..... *40@40&10%*
Covert Mfg. Co.:
Derby ..... 30&2%
High Grade 40%
Jockey 35%
Trojan 45%
Yankee ..... 30&2%
Yankee Roller ..... 30&2%
Covert's Saddlery Works:
Crown 60%
German 60%
Model 60%
Triumph 60%
Oneida Community:
Harness Snaps, 1 inch ..... 60&5%
Swivel Snaps 60%
Swivels 50%
Sargent's Patent Guarded ..... 66⅔&10%

Snaths—
Scythe *50%*

Snips, Tinners—See *Shears.*

Spoons and Forks—
Silver Plated—
Good Quality ..... *50&10@60&5%*
Cheap ..... *60@60&10%*
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton ..... 40&10%
Rogers & Bro., William Rogers' Eagle Brand ..... 50&10%
Anchor, Rogers Brand 60%
Wm. Rogers & Son ..... 60&10%

Miscellaneous—
German Silver ..... *60@60&5%*
Cattaraugus Cutlery Co.:
Seneca Silver 50%

Tinned Iron—
Teas ..... *per gro. 45@50¢*
Tables ..... *per gro. $0.50@$1.00*

Springs— Door—
Chicago (Coil) ..... 40&10%
Gem (Coil) 20%
Pullman (Coil) 25%
Reliance (Coil) ..... 40&10%
Star (Coil) 30%
Torrey's Rod, 39 in. ..... ₱ doz. $1.10
Victor (Coil) ..... 50&10&10%

Carriage, Wagon, &c.—
1¼ in. and Wider: *Per lb*
Black ..... *4@4¼¢*
Half Bright ..... *4@4¼¢*
Bright ..... *4½@4¾¢*
Painted Seat Springs:
1½ x 2 x 26 ..... *per pr. 42¢*
1½ x 3 x 28 ..... *per pr. 70¢*

Sprinklers, Lawn—
Enterprise ..... 25@30%
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24 ..... 30%
Pleuger & Henger Mfg. Co.:
Cactus 70%
Japanese 75%
Nationals 65%

Squares—
Nickel plated } *List Jan. 5, 1900.*
Steel and Iron } *75&5@75&10%*
Rosewood Hdl. Try Square and T-Bevels ..... *60&10&10@70%*
Iron Hdl. Try Squares and T-Bevels ..... *40&10@40&10&10%*
Disston's Try Sq. and T-Bevels 70%
Winterbottom's Try and Miter, No. 1, 40%; No. 2 ..... 50%

Squeezers, Lemon
Wood, Common, gro., No. 0, $5.25@$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap ..... *doz. $1.00*
Good Grade ..... *doz. $1.25.*
Tinned Iron ..... *doz. $0.75@1.25*
Iron, Porcelain Lined ..... *doz. $1.75*

Staples—
Barbed Blind ..... *lb. 6@6¼¢*
Electricians', Association list ..... *80&10&10&10%*
Fence Staples, Plain, $2.25; Galvanized *$2.55*
Poultry Netting Staples ..... *per lb. 3¼@3½¢*
Grand Crossing Tack Co.'s list ..... 80&10%

Steels, Butchers'—
Dick's 30%
Foster Bros. 30%
C. & A. Hoffmann's 40%

Steelyards— ..... 30@30&10%

Stocks and Dies—
Blacksmiths' ..... *50@50&10%*
Curtis Rev'ble Ratchet Die Stock 25%
Derby Screw Plates 25%
Green River 25%
Lightning Screw Plate 25%
Little Giant 25%
Reece's New Screw Plates 25%

Stoners, Cherry—
Enterprise ..... 25@30%

Stones—Oil, &c.
Chicago Wheel & Mfg. Co., 1904 list:
Gem Corundum Oil, Double Grit 60%
Gem Corundum Axe, Single or Double Grit 60%
Gem Corundum Slips 60%
Gem Corundum Razor Hones 50%
Pike Mfg. Co., 1904 list: ₱ lb.
Arkansas St. No. 1, 3 to 5½ in. $2.80
Arkansas St. No. 1, 5½ to 8 in. $3.50
Arkansas Slips No. 1 ..... $4.00
Lily White Washita, 4 to 8 in. 80¢
Rosy Red Washita, 4 to 8 in. 60¢
Washita St., Extra, 4 to 8 in. 50¢
Washita St., No. 1, 4 to 8 in. 40¢
Washita St., No. 2, 4 to 8 in. 30¢
Lily White Slips ..... 90¢
Rosy Red Slips ..... 90¢
Washita Slips, Extra ..... 80¢
Washita Slips, No. 1 ..... 70¢
Washita Slips, No. 2 ..... 40¢

India Oil Stones (entire list)....33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....33⅓%
Quickcut Emery and Corundum Axe Stone, Double Grit.....33⅓%
Quickcut Emery Rubbing Bricks.33⅓%
Hindostan No. 1, R'g'lar, ℔ lb 8¢
Hindostan No. 1, Small..℔ lb 10¢
Axe Stones (all kinds).....
Turkey Oil Stones, Extra, 5 to 8 in.....℔ lb 80¢ } 33⅓%
Queer Creek Stones, 4 to 8 in.20¢
Queer Creek Slips.....40¢
Sand Stone.....6¢

Scythe Stones—

Chicago Wheel & Mfg. Co.:
Gem Corundum, 10 in., $8.00 ℔ gro., 12 in., $10.80.
Norton Emery Scythe Stones:
Less than gross lots.....℔ gro. $9.00
One gross or more.....℔ gro. $7.20
Lots of 10 gross or more..℔ gro. $6.00
Pike Mfg. Co., 1901 list:
Black Diamond S. S..℔ gro. $12.00
Lamoille S. S.....℔ gro. $11.00
White Mountain S. S.℔ gro. $9.00
Green Mountain S. S..℔ gro. $6.00
Extra Indian Pond S.S.℔ gro. $7.50
No. 1 Indian Pond S.S.℔ gro. $7.00
No. 2 Indian Pond S.S.℔ gro. $4.50
Leader Red End S. S.℔ gro. $4.50
Quick Cut Emery....℔ gro. $10.00
Pure Corundum,.....℔ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat, $8
Emery Scythe Rifles, 3 Coat, $10
Emery Scythe Rifles, 4 Coat, $12
Balance of 1904 list 33⅓% } 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers.....℔ gro. $9.00

Stops— Bench—

Millers Falls.....15&10%
Morrill's, ℔ doz., No. 1, $10.00.....50%
Morrill's, No. 2, $12.50.....50%

Door—

Chapin-Stephens Co.....60@60&10%

Plane—

Chapin-Stephens Co.....20%

Straps— Box—

Cary's Universal, case lots.....25&20%

Hame—

Covert's Saddlery Works.....60&10%

Stretchers, Carpet—

Cast Iron, Steel Points, doz. 60@60&10%
Sockct ..... *doz. $1.60*
Excelsior Stretcher and Tack Hammer Combined, ℔ doz. $6.00.....20%

Stuffers, Sausage—

Enterprise Mfg. Co.....25@25&7½%
National Specialty Co., list Jan. 1, 1902 .....30&5%

Sweepers, Carpet—

National Sweeper Co.: ℔ doz.
Louis XV, Roller Bearing, Gold Plated $120.00
Hepplewhite, Roller Bearing, Silver Plated.....$72.00
Sheraton, Roller Bearing, N'kel.$60.00
Ye Mission, Roller Bearing, Oxidized Coppered.....$36.00
Transparent, Roller Bearing, Plate Glass top, Nickeled.....$36.00
National Queen, Roller Bearing, Fancy Veneers.....$27.00
Loyal, Roller Bearing, Veneers, Nickeled $25.00
Triple Medal, Roller Bearing, Nickeled $24.00
Marion, Roller Bearing, N'kel.$24.00
Marion Queen, Roller Bearing, Nickeled $24.00
Monarch, Roller Bearing, N'kel.$22.00
Monarch, Roller Bearing, Jap..$20.00
Perpetual, Regular B'r'gs, N'kel.$20.00
Perpetual, Regular B'r'gs, Jap..$18.00
Monarch Extra (17 in. case), Roller Bearing, Nickeled.....$36.00
Monarch Extra (17 in. case), Roller Bearing, Japanned.....$33.00
Auditorium (26 in. case), Roller Bearing, Nickeled.....$54.00
Mammoth (30 in. case), Roller Bearing, Nickeled.....$60.00

NOTE.—Rebates: 50c per dozen on three-dozen lots; $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots; $2.50 per dozen on twenty-five-dozen lots.

Streator Metal Stamping Co.:
Model E, Sanitaire.....℔ doz $25.00
Model A, Sterling.....℔ doz. $25.00
Model B, Sterling, Nickeled..... ℔ doz. $23.00
Model B, Sterling, Japanned..... ℔ doz. $21.00
Model C, Sterling.....℔ doz. $21.50
Model D, Sterling.....℔ doz. $19.50

Tacks, Finishing Nails, &c.

New List, May 1, 1905.
American Carpet Tacks..90@37½%
American Cut Tacks....90@37½%
Swedes Cut Tacks.....90@37½%
Swedes Upholsterers' Tacks.... 90&50%
Gimp Tacks.....90&50%
Lace Tacks.....90&50%
Trimmers' Tacks.....90@37½%
Looking Glass Tacks.....65%
Bill Posters' and Railroad Tacks, 90&50%
Hungarian Nails.....85%
Finishing Nails.....70%
Trunk and Clout Nails....80&5%

NOTE.—The above prices are for Standard Weights. An extra 5% is given on Medium Weights, and an extra 10&5% is given on light weights.

Miscellaneous—

Double Pointed Tacks..... 90&6 or 7 tens
Steel Wire Brads, R. & E. Mfg. Co.'s list .....50&10@60%
See also Nails, Wire.

Tanks, Oil—

	Each.
Emerald, S., S. & Co.....30-gal.	$3.40
Emerald, S., S. & Co.....60-gal.	$4.25
Queen City, S., S. & Co....30-gal.	$3.65
Queen City, S., S. & Co....60-gal.	$4.50

Tapes, Measuring—

American Asses' Skin...50@—%
Patent Leather.....25@30&5%
Steel .....33 1-3&5%
Chesterman's .....25@25&5%
Eddy Asses' Skin.....40&10@50%
Eddy Patent Leather.....25@30&5%
Eddy Steel.....40@40&10%
Keuffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather..... 25&5@25&10%
Metallic and Steel, lower list..... 35@35&5%
Pocket .....35@35&5%
Lufkin's:
Asses' Skin.....40&10@50%
Metallic .....30@30&5%
Patent Bend, Leather....25&5@25&10%
Pocket .....40@40&5%
Steel .....33⅓@35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger... per 100 lbs. $3.00

Thermometers—

Tin Case.....80&10@80&10&5%

Ties, Bale—Steel Wire—

Single Loop.....80@82½%
Monitor, Cross Head, &c....70%

Brick Ties—

Niagara Brick Ties.....25&10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works.....60&10%

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White.....20@20&5%

Hay—

Myers' Hay Tools.....50%
Stowell's Hay Carriers.....50%
Stowell's Hay Forks.....50%
Stowell's Fork Pulleys.....50%

Miniature—

Smith & Hemenway Co.'s.....25%

Saw—

Atkins' Cross Cut Saw Tools.....40%
Simonds' Improved.....33⅓%
Simonds' Crescent.....25%

Ship—

L. & I. J. White.....35%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz. $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz. $1.25@1.40; gro. $13.00@13.50

Game—

Imitation Oneida.....75@75&5%
Newhouse .....40@45&5%
Hawley & Norton.....65%
Victor .....70&10%
Oneida Community Jump.....50%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes 8½@9¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, each $1.21; ℔ doz. $13.25
No. 3, Rat, ℔ doz. $6.50; case of 50 $5.75 doz.
No. 3½, Rat, ℔ doz. $5.25; case of 72 ℔ gro. $4.70 doz.
No. 4, Mouse, ℔ doz. $3.85; case of 150 $3.00 doz.
No. 5, Mouse, ℔ doz. $3.00; case of 150 $2.25 doz.

Trimmers, Spoke—

Wood's E I.....50%

Trowels—

Disston Brick and Pointing.....30%
Disston Plastering.....25%
Disston "Standard" Brand" and Garden Trowels.....35%
Kohler's Steel Garden Trowels, 5 in. ℔ gro. $4.80
Kohler's Steel Garden Trowels, 6 in. ℔ gro. $6.00
Never-Break Steel Garden Trowels.. ℔ gro. $6.00
Rose Brick and Plastering.....25&5%
Woodrough & McParlin, Plastering.25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern.....50&10%
Western Pattern.....60&10%
Handy Trucks.....℔ doz. $16.00
Grocery .....℔ doz. $15.00
Daisy Stove Trucks, Improved Pattern .....℔ doz. $18.50
McKinney Trucks.....each $10.00
Model Stove Trucks.....℔ doz. $18.50

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$4.25*	*4.75*	*5.25*

Galvanized Wash Tubs (S., S. & Co.):

No.	1	2	3	10	20	30
Per doz., net.	$5.70	6.30	7.20	6.60	7.20	8.10

Twine, Miscellaneous—

	Flax Twine:	*BC.*	*B.*
No. 9, ¼ and ½-lb. Balls		*.22@24¢*	
No. 12, ¼ and ½-lb. Balls		*.18@20¢*	
No. 18, ¼ and ½-lb. Balls		*.16@18¢*	
No. 24, ¼ and ½-lb. Balls		*.16@18¢*	
No. 36, ¼ and ½-lb. Balls		*.15@17¢*	
Chalk Line, Cotton ½-lb. Balls		*.25@30¢*	

Cotton Mops, 6, 9, 12 and 15 lb. to doz.....10@18¢
Cotton Wrapping, 5 Balls to lb., acording to quality...1½@20¢
American 2-Ply Hemp, ¼ and ½-lb. Balls.....13@14¢
American 3-Ply Hemp, 1-lb. Balls .....13@14¢
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine).....8½¢
India 3-Ply Hemp, 1-lb. Balls..8½¢
India 3-Ply Hemp, 1½-lb. Balls. 7@8¢
2, 3, 4 and 5-Ply Jute, ½-lb. Balls .....9@10¢
Mason Line, Linen, ½-lb. Bls.46¢
No. 264 Mattress, ¼ and ½-lb. Balls .....87¢
Wool, 3 to 6 ply....B 6¢; A 6½¢

Vises—

Solid Box.....60%

Parallel—

Athol Machine Co.:
Simpson's Adjustable.....40%
Standard 40%
Amateur 25%
Columbian Hdw. Co.....40%
Emmert Universal:
Pattern Makers' No. 1, $15.00; No. 2, $12.50.....40%
Machinist and Tool Makers' No. 4A, $12.50; No. 5A, $7.00; No. 6A, $10.00; No. 10A, $22.50.
Presto Quick Acting.....25@25&5%
Tiger Machinists' 40%
Fisher & Norris Double Screw..15&10%
Hollands':
Machinists' .....40@40&5%
Keystone .....65&5@70%
Lewis Tool Co.:
Adjustable Jaw.....30%
Monarch 50%
Solid Jaw.....50%
Merrill's.....20%
Millers Falls.....60&10%
Massey Vise Co.:
Clincher 40%
Perfect 20%
Lightning Grip.....20%
Parker's:
Victor .....20@25%
Regulars .....20@25%
Vulcan's .....40@45%
Combination Pipe.....55@60%
Prentiss .....20@25%
Sargent's 40%
Snediker's X. L.....33⅓%
Stephens' 33⅓%
Williamson Mfg Co. Double Swivel.. 40&5%

Saw Filers—

Disston's D 3 Clamp and Guide, ℔ doz. $30.....25%
Perfection Saw Clamps, ℔ doz....$4.50
Reading 60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....45&50%

Wood Workers—

Massey Vise Co.:
Lightning Grip.....15%
Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Bignall & Keeler Combination Pipe Vise .....60&10%
Holland's Combination Pipe..60@60&5%
Massey's Quick Action Pipe.....40%
Parker's Combination Pipe:
87 Series.....60%
187 Series.....60&5%
No. 870.....40%
Williamson Mfg. Co. Double Swivel Combination Pipe.....40&5%

Wads—*Price per M.*

B. E., 11 up	*.60¢*
B. E., 9 and 10	*.70¢*
B. E., 8	*.80¢*
B. E., 7	*.80¢*
P. E., 11 up	*$1.00*
P. E., 9 and 10	*1.25*
P. E., 8	*1.50*
P. E., 7	*1.50*

Dis. 15%

Ely's B. E., 11 and larger..$1.70@1.75
Ely's P. E., 12 to 20....$3.00@3.25

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:
Enameled 55%
Ground 60%
Plain or Unground.....65%
Country Hollow Ware, per 100 lbs. $2.75
White Enameled Ware:
Maslin Kettles.....70%
Covered Wares
Tinned and Turned.....40%
Enameled 50%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware.....60%
Iron Clad Ware.....70&10%
Lava, Enameled.....40&10%
Never Break Enameled.....50%

Tea Kettles—

	Galvanized Tea Kettles:			
	Inch.....	*6*	*7*	*8*	*9*
	Each	*45¢*	*50¢*	*55¢*	*65¢*

Steel Hollow Ware—

Avery Spiders and Griddles..65@65&5%
Avery Kettles.....60%
Porcelained .....50&5@50&10%
Never Break Spiders and Griddles.. 65&5%
Never Break Kettles.....60%
Solid Steel Spiders and Griddles.65&5%
Solid Steel Kettles.....60%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

Solid Zinc: ℔ doz.
Crescent, family size, bent frame.$3.25
Red Star, family size, stationary protector $3.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector.....$2.90
Cable Cross, family size, stationary protector.....$3.15
Single Zinc Surface:
Naiad, family size, open back, perforated $2.65
Saginaw Globe, protector, family size, ventilated back.....$2.50
Brass Surface:
Brass King, Single Surface, open back $3.25
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.25
Glass Surface:
Glass King, Single Surface, open back $3.25
Enamel Surface:
Enamel King, Single Surface, ventilated back.....$3.25

Washers—Leather, Axle—

Solid				*.80&10@80&10&10%*
Patent				*.90@90&5%*
Coil:	*⅞*	*1*	*1⅛*	*1¼ Inch.*
	10¢	*11¢*	*12¢*	*13¢ per box*

Iron or Steel—*Net.*

	Size bolt....	*5-16*	*⅜*	*½*	*⅝*	*¾*
Washers		*$5.20*	*4.30*	*3.00*	*2.80*	*2.60*

In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Cast Washers—

Over ½ inch, barrel lots..... per lb. 1¾@2¢

Weather Strip—

Flexible Felt—

Lined, per 100 ft., $2; $3; $4.....40&10%
Moore's Unlined, per 100 ft., $2; $3; $4 .....50&10%

Wedges—

Oil Finish.....lb. 2.25@2.50¢

Weights—Hitching—

Covert Mfg. Co.....40&2%
Covert's Saddlery Works.....60&10%

Sash—

Per ton, f.o.b. factory:
Eastern District...$27.50@$28.00
Southern Territory.$20.00@$23.00
Western and Central Districts .....$23.00@$25.00

Wire and Wire Goods—

Bright and Annealed:
6 to 9.....80%
10 to 18.....80&2½%
19 to 26.....80&7½%
27 to 36.....80&2½%
Galvanized:
6 to 9.....75&5%
10 to 14.....75&7½%
15 to 16.....72½&10&2½%
19 to 26.....75%
27 to 36.....72½%
Coppered:
6 to 9.....75&5%
10 t. 14.....75&7½%
15 to 18.....72½&10&2½%
19 to 26.....75&10&5%
27 to 36.....75%
Tinned:
6 to 14.....75&10&2½%
15 to 18.....75&7½%
Annealed, Steel and Tinned, on Spools ..70&10&10@70&10&10&10%
Brass and Copper on Spools... 60&5@60&10&5%
Brass, list Feb. 26, '96.....20%
Copper, list Feb. 26, '96.....25%
Cast Steel Wire.....50%
Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

List June 24, 1903.....90&40%

Wire Cloth and Netting—

Galvanized Wire Netting..... 80&5@80&10%
Painted Screen Cloth, 100 ft., $1.10
Standard Galv. Hardware Grade:
Nos. 2, 2½ & 3 Mesh, sq. ft.3 ¢
Nos. 4 and 5 Mesh, sq. ft..3½¢
No. 6 Mesh, sq. ft.....3½¢
No. 8 Mesh, sq. ft.....4 ¢

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural ....75&10@75&10&10%
Alligator or Crocodile..70&10@75%
Baxter Pattern S Wrenches... 70&5@70&10%
Drop Forged S.....45@45&5%
Acme .....60&10%
Alligator Pattern.....70%
Bull Dog.....70%
Bemis & Call's:
Adjustable S.....40%
Adjustable S Pipe.....40%
Bemis Pipe.....60%
Briggs Pattern.....40%
Combination Black.....40&5%
Combination Bright.....40%
Merrick Pattern.....50%
Boardman's 40%
Coes' Genuine Knife Hdl..40&10&5&5%
Coes' Genuine Steel Hdl..40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes', Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Donohue's Engineer.....40&10%
Eagle .....50&10%
Elgin Wrenches, ℔ doz.....$6.25
Elgin Rethreading Attachment, one die, ℔ doz.....$6.25
Elgin Extra Dies, ℔ doz.....$3.00
Elgin Extra Jaws, ℔ doz.....$1.75
Elgin Monkey Wrench Pipe Jaws, ℔ doz.....$2.10
Gem Pocket.....30%
Hercules 70%
W. & B. Machinist:
Case lots.....50&5%
Less than case lots.....50%
Solid Handles, P., S. & W...50&10@60
Stillson 65%
Vulcan Chain.....50%

Fruit Jar—

Triumph Fruit Jar Wrench, 5 gross lots, ℔ gross, $7.50; ℔ doz.....$0.80

Wringers—

Tuttle Roller Press Mop Pail Wringer, each, $8.00; ℔ doz.....$48.00

Wrought Goods—

Staples, Hooks, &c., list March 17, '02.....90@90&10%

Yokes, Neck—

Covert Saddlery Works, Trimmed..70%
Covert Saddlery Works, Neck Yoke Centers 70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers' & Freighters'.....list net

Zinc—

Sheet.....per 100 lbs., $7.75@8.00

For the Table of "Current Metal Prices" see the First Issue of Every Month.